COMMODORE

156 PAGE ISSUE

COMPUTING INTERNATIONAL

OCTOBER 1987

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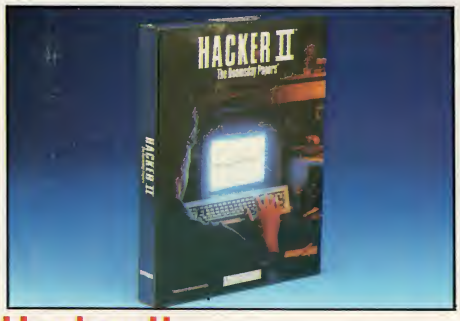

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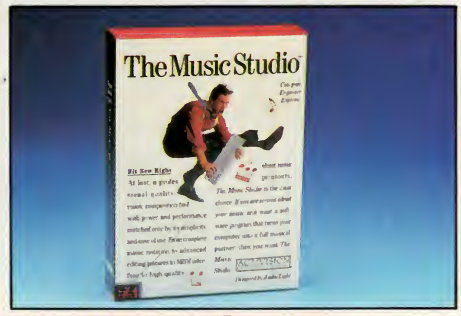

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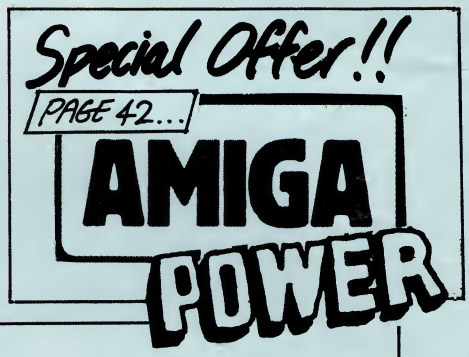

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CCI View

Dear Reader —

While we hope wherever you are — and CCI reaches around 60 countries — that you have been enjoying Summer holidays — we here at CCI are already involved in the run up to the end of the year. Preparation for the issue dated November begins early in August . . . This October issue has 156 pages but we are already planning Autumn and Winter month CCI's for 200 pages or more. Plenty for everyone's interests we hope — though one reader's letter *complains* that CCI is habit-forming partly because there is too much in it! It's hard to please everyone it seems. But for those who enjoy it, you can look forward to some big, big mags to come.

We do know that one very popular area is 'special offers' that give you the chance to buy products at lower than usual prices. This month, in addition to some other special offers we are able to bring CCI readers an exciting possibility of buying an Amiga and monitor for *£200* off the list price. Unfortunately, this special offer which is in collaboration with Commodore UK, only applies for a limited period, a very limited period, and in the UK. If you are a reader elsewhere, we suggest you contact your local Commodore headquarters and ask for the same opportunity. We have included it because we believe that it brings the Amiga down to a very much more acceptable price.

Commodore UK, who have made this special offer through CCI, now have a new Managing Director. This month we have an exclusive interview with him. Can individual country's MD's make any real difference to companies whose products are world sellers? Well, maybe not in the product itself — the design or technical specification and so on, but in areas like service and dealing with other customer problems, they certainly can affect the way the company deals with you. In the past CBM has made a lot of people unhappy — who then often complained to us. The problems may have been partly due to circumstances — the change in CBM's financial fortunes, physically moving premises etc but Commodore UK's new boss seems determined to make "quality" work not just for CBM but for its customers too; a welcome attitude that should bring more helpful results to Commodore buyers and owners.

We are now in response to heavy demand about to begin to supply the programs appearing in CCI in disk or cassette form. Starting with this issue, you will be able to buy separately or subscribe to receive regularly programs published in CCI both past and future. The cost will be extremely economical and it will save you both time and money.

There is no doubt the age of the early hours of the morning typer are passing. All the coming machines ill be equipped with disk drives. So the computer will do the work and leave the computer owner to do the enjoying. And it will mean the end of the slow and restricting cassettes that the UK still stubbornly refuses to give up — and about time too, most people will say. Oh, that is of course unless you are talking about *video* cassettes as memory devices as one article in this issue of CCI tells us. And there are also the CD quality D.A.T. cassettes which we covered a couple of months back. Ah well, get rid of your datasette, buy a disk drive and then you'll probably read in CCI about the next wave of technology sweeping you almost back to where you started again. Isn't there some sort of saying about everything changing but everything remaining the same? But at least, we hope that won't take us back to typing in programs where one mistake means that the whole thing refuses to run. Roll on the fault-tolerant home computer too . . .

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SPECIAL PROGRAMS OFFER !!

FROM NEXT MONTH YOU WILL BE ABLE TO SUBSCRIBE FOR PROGRAMS PUBLISHED IN C.C.I. TO BE SENT TO YOU REGULARLY ON CASSETTE OR DISK. THE ORDER FORM WILL BE IN THE NOVEMBER ISSUE OF C.C.I.

Power House Trio

The Power House have announced three new games for the 64 at £1.99.

Land of Neverwhere

The Land of Neverwhere is a new fast arcade game.

Eight space kids have got themselves stranded on the unusual, and rather unstable planet MURTCEP 5. Your job is to rescue the kids within a time limit. This, however, is a far from routine rescue, for MURTCEP 5 has the ability to produce some very weird images.

Guide the kids towards safety but be careful not to be fooled by the images, because if you touch an image, it's back to the beginning of the level, and try again.

There are 8 levels which have over 20 smooth, fast scrolling screens. Power House says it has great music and addictive gameplay.

Darkside

Darkside is a new shoot 'em up. Wave upon wave of aliens attack you from every corner, each wave has the ability to move in any direction. The further into the Darkside you enter, the harder it gets, as double the amount of aliens attack you. All sorts of surprises await as you enter the Darkside.

Morphicle "The Transformer Car"

Morphicle is an original arcade strategy game. You must find the bomb which is hidden in each level. To find the bomb and defuse it, you must complete three different tasks. In the first part you must drive your car through the maze of roads. During your journey you will be blocked but transform your car into space mode and you can fly over them. Once you have found the underground caverns you must get to the computer, and then it is a race against time to use the computer to defuse the bomb.

Two different landscapes, 10 mazes (each with up to 300 locations), 10 different computer puzzles, shadowmotion, smooth scrolling are some of the different features in Morphicle.

Imagine's Athena

Athena, the new coin-op game from SNK presents, Imagine claims, a totally original gameplay and scenario, combined with addictive arcade action.

Worlds of fire, ice, caverns, sky and hell itself await you in your quest to defeat the demons and monsters in this mythological universe.

Build up your weaponry and armour, as you smash through walls, in which you collect icons.

Imagine says Athena is a massive scenario giving you a huge amount of enjoyment. £8.95 (c) £12.95 (d).

486 — Home Mainframe?

Intel has announced the 80486, the next generation processor in its chip series.

Planned for 1990, the processor will have a 32-bit data bus and the equivalent of 1 million to 1.25 million transistors. Intel senior vice president, David House, described the device as a "tuned computing engine" B86 based computers are just beginning to make their appearance.

The 486 unit will consist of a CPU, memory management, accelerators such as maths coprocessors and I/O controllers — including communications ports — and high speed graphics support.

A computer built around the chip will, Intel claims, have a performance equal to an IBM Sierra mainframe, capable of executing 20 million instructions per second.

Martech's Slaine

Slaine, the popular 2000AD cult hero, has been licensed by Martech and to be released in early Autumn.

Martech tells us Slaine is a game unlike any other game that has been written. It is possible for the player to control Slaine in a totally different way. Unlike arcade games where you exercise direct control of the characters by movements of the joystick or keyboard, or adventures where you have to laboriously key in even your simplest wishes, in this game you control Slaine by taking over his mind.

Creative Reality are the group of programmers behind the games design and Reflex is the name given to describe this unique method of game control. Martech are confident that Slaine will become just the first of a series of games from Creative Reality to use Reflex.

Every situation that Slaine is confronted with could produce a number of responses. Slaine's mind races to make sense of the situatio and a mass of possible courses of action appear on the screen. You need to decide as quickly as possible what to do. Once you have made up your mind the results of that course of action are presented to you graphically, thereby creating a new situation for Slaine and a further mass of ideas will fill his struggling brain.

The flexibility Reflex presents to the games player is enormous. Martech claims that at last, the excitement and action of arcade games has been combined with the depth of gameplay of the best adventures.

Micropro New Wordstar Price

MicroPro has cut its price of WordStar 2000 Plus to £465. This was originally the price of WordStar 2000 which they have now withdrawn. The previous price of WordStar 2000 Plus was £549 (exc. VAT).

The Plus package incorporates a Telecommunications facility, MailList, with update, sort and select options, and StarIndex, for automatic indexing and table of contents generation.

Commenting on the decision to sell only WordStar 2000 Plus, instead of both products, john Speller, Managing Director of MicroPro said, "Users will greatly appreciate this substantial increase in value".

Contact: MicroPro, Haygarth House, 28-31 High Street, Wimbledon Village, London SW19 5BY. Tel: 01-879 1122.

Captain Courageous

English Software's newest recruit is Captain Courageous.

You are going soon to get the chance to follow his adventures through: Hair-raising jungle combat; journeys up treacherous rivers; dangerous descents and lethal rockfalls; quick-fire sniper attacks; dramatic gun-fights across high level bridges and a final rescue bid and helicopter snatch! Commodore 64/128 (c) £8.95 (d) £12.95.

New Viglen Printer Stands

Viglen has just announced a new range of printer stands which are for use with most 80 or 136 column PC printers.

At the start of the range is a metal printer stand, finished in black, which has been specially designed for use with the popular Centronics GLP II printer. A larger version of this stand, with a paper roll holder, is also available for other 80 column printers.

Viglen's perspex stands raise printers high enough to put continuous stationery beneath. Two models are available in clear or smoky perspex to cater for 80 and 136 column printers.

Viglen also supplies a high-impact, plastic printer stand which is colour-matched to most printers on the market today. The stand allows up to 1,000 sheets of continuous stationery to be stored beneath.

Viglen's stands cost from £9.95 to £29.95.

For further information please contact Cliff Musson at Viglen Ltd.

For further press information please contact Sharon Wiggins at HPS Ltd. Tel: (0494) 40176.

Star Cut Prices

Star Micronics UK Ltd has announced major price reductions on two of its most popular dot-matrix printers. Prices will fall by over ten per cent bringing the NL-10, claimed to be the best selling printer below 150 cps in the UK, down to £248 (including parallel interface) and the top-of-the-range letter quality NB-15 down to £849 (also including interface).

The NL-10 (previously £278) is a nine-pin printer and offers 120 characters per second (cps) in draft mode and 30 cps in near letter quality. The NB-15 (previously £949) provides 300 cps in draft output and true laser-like letter quality printing at 100 cps.

Contact: Star Micronics UK Limited. Tel: 01-840 1800.

Precision's Printer

A high speed, top quality, low cost dot matrix printer is the first hardware product to be launched by Precision Distribution under its own name.

The Precision 4010 owes its remarkable speed — 252 lines per minute in draft mode, 55.8 lines per minute for near letter quality — to the fact that it uses four print heads.

It offers IBM and Epson modes with a choice of nine different fonts and high resolution graphics. A Centronics interface is standard.

An 8k print buffer, which is expandable to 32k, ensures that computers are tied up for the shortest possible time.

The machine carries a basic price tag of £389 plus VAT. However, it is also available bundled with a choice of either Precision's own bestselling relational database Superbase Personal, GEM and a mouse, or with WordPerfect Executive, a combined wordprocessor, spreadsheet and library.

Both package cost £469.

Though the Precision 4010 is the first hardware product to carry the company's name, it certainly won't be the last.

"We intend to launched a series of precision-badged lines to expand our already comprehensive product list", says Richard Binley, the company's divisional director for distribution.

For further information: Contact 01-330 7166.

Citizen to manufacture in the UK

Citizen Europe Limited is to manufacture its range of computer printers in the UK. Mr Nakajima, the President of Citzien Watch Company of Japan said, "We have made the decision to build Citizen's first computer printer factory outside Japan in the United Kingdom".

Investment in the new factory, a 75,000 square foot unit to be built on a 4-acre site in Scunthorpe, South Humberside, is expected to be in the region of £6 million. Three hundred jobs will be created when full production is reached by the end of 1988, by which time production will have reached 30,000 units per month.

Production of two products in the Company's range of 13 computer printers will begin sooner however, in October of this year, in an existing factory unit in Scunthorpe. The first model off the temporary production line will be Europe's fastest selling printer the Citizen 120D dot matrix printer.

The decision to manufacture in Europe was made last year, when after less than two years' trading, Citizen saw that it was on the way to selling its two hundred thousandth printer in Europe.

New 128 Packages

FONTMASTER 128 is a new generation word processor on the 128 which not only has all the features of today's W.P. packages but has the ability to take graphics, high res screens and use them in text. Text automatically works around them amongst other features or can be superimposed over the graphic. There are 45 different styles of text available (fonts) in three heights. Thee is a foreign languages disk so you can write and print in any language and Hebrew is even printed right to left! Fancy borders are available and fully 64k text memory. Over 118 printers are now supported (including 24 pin and Laser) as well as all the known interfaces for centronics printers. There is a font editor/creator and a graphics grabber. This package won the Best Innovative Software Award at the Chicago Consumer Electroics Show June, 1987. US price $45 with a clip-art disk with 110 images available at $5. A 72,000 word spellchecker on the way later in the year.

3-D CANVASS is a Graphic-Art package for the 128. True 3-D can be displayed on screen (not wire frame) in any size, even transparent 3-D. 2-D drawing as well. Save to disk or print and even add sprite animation for living drawings. You can paint with two colours at once and there is a converter to stretch your 40 column drawing to 80 columns. 3-D Canvass will use Koala-Pad, Doodle images etc, Circles, spheres, boxes, polygons, patterns, rays etc, are all available. US price $39.

Contact: Bytes & Pieces, 37 Cecil Street, Lytham, Lancashire FY8 5NN. Tel: 0253 734330.

Steve Dunn — Program sent to C.C.I. has no documentation or address. Please get in contact with C.C.I. regarding further information.

RPS Public Domain Software

A new low cost package — offering a selection of 10 different software programs on RPS High Focus 5¼" disks — is being launched by computer media specialist, RPS.

With the arrival of low cost IBM compatibles, like the Commodore PC, and the widespread use of personal computers, there is a growing requirement for budget software programs. There is a vast selection of programs available but frequently the purchase cost can be prohibitive.

European computer media specialist, RPS, aims to combat this problem with RPS Public Domain Software. It offers a selection of packages to cater for the software requirements of most small-to-medium sized businesses as well as the added bonus of some 'video games' for leisure.

Each program is available on RPS High Focus disks — which guarantee data integrity through the use of isotropic coating — even under adverse operating conditions, thus ensuring safe information storage.

Programs included in the package include word processing, spread sheet, basic program and printer utilities, etc.

Contact: RPS, High Street, Houghton Regis, Beds. LU5 5QL. Tel: 0582 867222.

Tron is Coming...

Japanese electronic manufacturers still dream of establishing their own unique computer standard and breaking the Western domination of the world market. In spite of the relative disaster of the MSX home computer that failed to succeed outside Japan in sizeable numbers, they are now planning a new computer that sets out to impose its own standard on the world. The TRON computer is the brainchild of a professor of computer science at Tokyo University, Ken Sakamura. He wants to destroy the western domination by creating a totally new standard of hardware and software of a 32 bit level. He intends to present without charge all information on the architecture of the new computer to anyone who asks for it, charging a nominal 500,000 yen (£2127) to any company for access to all research that his team has carried out.
carried out.

His project has been going for three years and at first received little support. Now however he has over 40 Japanese companies backing him to the tune of 10 billion yen

The US computer industry is not so much afraid that TRON will hurt their markets in the West as that it might cause an impact in the Japanese market and shut out non-TRON computers from that lucrative area. A sign of the interest aroused by the new computer is that at a recent conference held to discuss TRON, 200 visitors were expected but 600 turned up, including a number from Western computer companies.

PC Teletext

An adaptor card is now available which enables personal computers (PC's) to receive and display all broadcast teletext transmissions. Up to now intending teletext users had to purchase teletext telvision sets or adaptors which gave no interactive control. Now a wide range of PC-users will be able to access the BBC's Ceefax and ITV's Oracle pages. This will bring the vast range of teletexed stock market, food market, travel, weather and other information before a new potential audience — the computer buff, business computer users, and home computer enthusiasts.

The Teledata 400 PC teletext adaptor card, using advanced automaic digital tuning, and the latest teletext processors, gives easy and rapid access to all generally available broadcast 'pages'. The software package included allows simple access, through windowed menus, to features such as a 'Viewdata' like database, page editor, page storage and retrieval from disk, and a host of teletext page display commands. It is compatible with monochrome and colour visual display units and can display the full teletext graphic character set.

A technical reference guide and the supplied driver software enables the adaptor to communicate with any software. This provides the ability to print out selected information from teletext transmissions. Print out in full graphics can be achieved, using C, BASIC, Pascal and other computer languages.

The Teledata 400 costs £269 plus VAT.

Contact: K-Bytes Limited, Fryern House, 125 Winchester Road, Chandlers Ford, Eastleigh, Hampshire SO5 2DR. Tel: 04215 2942.

Non Addictive Game?

Mindscape in the US are releasing Drug Alert! designed by Methods & Solutions to educate school pupils on the basic facts of drug abuse with a responsible and entertaining computer program.

In Drug Alert! students are asked to get Pat, a friend hooked on drugs, out of a seedy hotel. While wandering through the hotel's dank corridors, students wrestle with the realities of drug addiction. They must figure out how to get out of the hotel by answering drug-related questions, by destroying the drugs stashed away on each floor, and by finding and identifying the drug on which Pat is hooked.

Drug Alert! provides the opportunity to think critically and to solve problems related to substance abuse prevention. During the game students consult the Drug Alert! online handbook. The handbook, a database containing 45 drugs divided into four categories (narcotics and pain killers, stimulants, depressants, and hallucinogens), may be printed out in its entirety. Each drug is thoroughly described, giving students a glossary of street names, the effects of overdoses and withdrawal, legal status and a number of other pertinent facts.

Good Old Vic!

Good news for Vic 20 users! Some previously unavailable in this country ROM cartridge games are being released by A & S Distribution.

They are: Polaris from Carrera, a submarine arcade game; Atlantis from Imagic a space and underwater shoot 'em up and Demon Attack from Imagic an arcade shoot 'em up.

The recommended price for these is £29.95 but they are available from A & S at £9.95.

Contact: A & S Distribution Ltd, Unit 15, Midas Business Centre, Wantz Road, Dagenham, Essex RM10 3PS. Tel: 01-595 4904.

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Superbase 128	~~£99.95~~	**£49.95**
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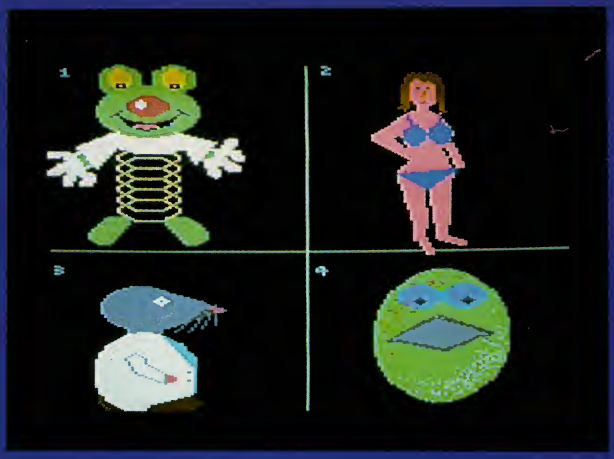

Following in our regular series of art packages: of course, last month's Quantel feature was something that made us all sit up and take notice. Home computer packages don't aspire to that level of state of the art technology, nevertheless a lot can be achieved for not a great deal of money. Datel's Blazing Paddles is an excellent example of the wonders of a home computer graphic package at a cost that is within everyone's reach.

Blazing Paddles supports a good number of input devices: touchpad, paddles, joystick, trackball and light pen. We tested the paddles, joystick and trackball option, and found, rather ironically, the paddles option didn't work on our 128D, but joystick and trackball worked well, with the AMX mouse also being compatible under the trackball option.

Drawing modes are selected from a number of boxes around the edge of the screen. These are: boxes, ovals, clear, window, text, shapes, load/save, printer, zoom, spray, fill, colour, lines, dots, sketch, and a choice of seven brushes. These are selected by positioning the cursor over the appropriate box and pressing the button. The icons then clear to show the picture being drawn.

Blazing Paddles is certainly a reasonably priced, professional style art program. . .

The joystick isn't really suited to freehand drawing, but fairly neat pictures can be drawn using lines, ovals and boxes. A mouse used under the trackball option moves very slowly most of the time, but surprisingly speeds up when drawing.

Most of the drawing functions are operated by moving the cursor to required point on the screen and pressing the button. Then move the cursor to the point that you want the edge of your oval, square etc. to pass through, and then press the button again.

Blazing Paddles is easy to use due to its simple, but effective icon system. Datel claim that the whole thing is sophisticated enough for a computer artist to use, but even children could use it as a colouring book. This may be a slight exaggeration. In my view, the youngest age that a child would understand it, and be interested by it would be about nine or ten, but it would certainly not be beyond any user in the early teens.

The disk and tape versions both sell for £12.99, and the disk version has three demo pictures included. These are nothing amazing, but demonstrate what can be achieved — and indeed as a starter package for anyone wanting to take up computer graphics it can hardly be bettered.

Blazing Paddles is certainly a reasonably priced, professional style art program, which any very prospective computer artist should definitely consider when choosing a graphics package for the 64. For its price Blazing Paddles is terrific value. Highly recommended.

Price: £12.99 (cassette or disk)

datel electronics
TEL: 0782 273815

Blazing Paddles Competition

To show just how much we all like Blazing Paddles, there are copies of this excellent art package for the first twenty people who can correctly name the four characters, who have all starred in recent hit games shown here. And you have to name CCI's resident Leonardo da Vinci with one clue — Initials T.H.!

Answers on a postcard please to: T.H.'s Famous Faces Art Comp., CCI, 40 Bowling Green Lane, London EC1R 0NE.

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Son of Hit Pak

The Hit Pak release, '6-Pak', in April 1987 proved to be one of the most successful computer game compilation packs ever released. 6-Pak Scored a No 1 hit in Boots, W H Smiths, John Menzies and Woolworth, reached No 2 in the Gallup Top 20 and was a big hit all over Europe. How do you follow an act like that?

'6-Pak Volume 2'

'6-Pak Volume 2' offers a selection of smash-hits of 1986 and 1987. Including International Karate from System 3, Air Combat Emulator (ACE) from Cascade, one of the top 10 best selling full price titles of 1986 (Gallup). Into the Eagles Nest, Shocking Rider and Lightforce. As a bonus, one of the games Batty, is previously unreleased — a brand new game alongside a collection of classic hits.

'Yes Prime Minister' for 64

With 'Yes Prime Minister' — the computer games market has finally made it to the hallowed door of No. 10 Downing Street. A computer version of the popular TV series will be launched for the 64 in the Autumn.

A week is a long time in politics — can you survive just five days? You play Jim Hacker MP, PM. You have the world at your feet and Sir Humphrey and Bernard behind you. Your aim is to steer the leaky ship of state through a turbulent week in Westminster. Do you have the ability, the guile, the sheer political will to stay on top?

This is a new collaboration between Mosaic, who specialise in book and TV software adaptations and are best known for the highly successful 'Secret Diary of Adrian Mole', and Oxford Digital Enterprises who received wide critical acclaim for the best-selling 'Trivial Pursuit Computer Game'.

D.I. goes for Gold!

Digital Integration with the assistance of Nick Phipps, our number 1 driver, are completing the development of a game based upon Bobsleigh, with the following features: race down the six greatest Bobsleigh tracks in the World, St Moritz, Winterberg, Innsbruck, Breul-Cervinia, Konkesee and the Olympic track in Calgary; a 3D drivers view; accurate split timing; a variety of skill levels; full race analysis; complete mechanical backup.

Digital Integration are pleased to provide a glimpse of testing the latest Bobsleigh design, before it is taken to the continent for Winter trials and competition and then onto the Olympics in Canada in the spring of 1988. It also gave leading team members Nick Phipps and Alan Cearnes and well deserved break from their intensive summer training.

Bobsleigh's release is planned for Autumn 1987 and will be on Commodore 64.

Brother L.Q.D.M.

Brother, the second biggest seller in the UK market of dot matrix printers has launched a letter quality dot matrix printer — the 1724.

Printing at a quiet 58 decibels, the 24 pin 1724 operates at 216 characters per second in draft and offers fast letter quality priting at 72cps.

A dual interface — Centronics and RS232 — is offered and the 1724 is compatible with Epson 1000, Diablo 630 and IBM Proprinter XL. Additionally the 1724 has a buit-in tractor feeder with optional fonts and a cut sheet feeder. UK price £695.00.

The Gateway Computer Club in Mildenhall — a mullicomputer club — are looking for new members. Anyone interested should contact: Bob Hall, 46 Churchhill Drive, Mildenhall IP28 7DA. Tel: 0638 717723.

Colossus Bridge 64

CDS has announced release of Colossus 4.0 Bridge for the Commodore 64 and 128 computers.

It has the range of options that you expect from a Colossus program, and makes an ideal practice opponent or tutor. Major features include: fast response time; an "input hands" option to enable problem solving; the ability to save and load part completed games; rebid and replay, and backstep options to enable you to learn from your mistakes.

The program plays the Acol system and incorporates three popular conventions — Blackwood, Stayman and Baron. And in case that means nothing to you, a free copy of the book "Begin Bridge" by G.C.G. Fox is being supplied with each program sold.

Contact: CDS Software (0302) 21134.

128 Club

Financial Systems Software are launching a new international software Club for the 128. It will cover a number of different aspects of 128 requirements.

There will be a quarterly Journal which will have over 80 A5 sides of information, including sections on Graphics, Sound, Communications, Languages, Programs, Hints and Tips, Competitions, Letters, News, News from each Country and Pen-Pals. Each section will also include reviews, letters and comments.

International Pen-Pal Lists

An international penpal list of 128 users which already covers 25 countries will be available in groups of 100 Names and Address.

Public Domain Software

A library of Public Domain software will be available at a nominal cost to cover disks and postage.

Software Discounts

Large software discounts are available through the mail order part of the club. Discounts range from 5% to 55% per package.

The club will supply useful service for the 128 users who in many cases are unhappy about the range of software available.

Contact: Financial Systems Software, Brampton, Croome Road, Defford, Worcs. WR8 9AR. Tel: (0386) 750217.

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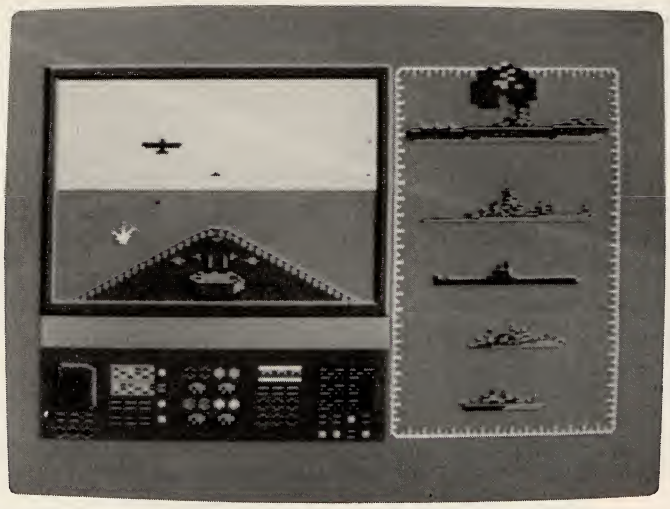

Elite's Battleships

For 6 months now, the programming team responsible for Commando, Ghosts 'n' Goblins and Space Harrier have been working on a computerised interpretation of the classic board game 'Battleships'.

The game has been designed to retain the nail biting strategy elements that have maintained the popularity of Battleships — but Elite say they've added the playability, addictiveness and up-to-date presentation available on the 64. it will be £9.95 (c) £14.95 (d).

It will be like being back at school and sitting at the back of the class, won't it?

PowerXtreme!

Reaktor is promising a blockbuster for release in the Autumn — The Centurions.

Programmed by the Crowther/Goodley partnership, Reaktor is predicting 'The Centurions' to be a top ten hit.

'The Centurions' — a 21st century team of elite fighting men, have PowerXtreme, a unique and totally original capability. Normally ordinary humans, the Centurions don special suits called Exoframes onto which special weapon packs — called Assault Weapon Systems — are snapped. Thus fused with his weapons, each Centurion gains the power of 1,000 men — he becomes a man/machine — the embodiment of PowerXtreme.

In the game — the evil Doc Terror is after the lethal Tyron-Dichromate — a chemical so dangerous it could easily destroy the earth completely.

The Centurions must search the Weapons Development Centre and find the hidden keys to unlock the security sections of the centre. Doc Terror must be stopped before it's too late . . . For the C64.

Hewson's Evening Star

Evening Star will be steaming onto the streets in September 1987. This is the second steam locomotive simulation from Hewson and looks set to follow the success of the classic Southern Belle.

The Evening Star was one of the most powerful steam locomotives of the British Railways fleet.

Evening Star features detached moving graphics with hidden line removal to reproduce the railways many famous landmarks. There are a multitude of combinations of journey type, control level and schedule available, plus a variety of tricky situations for those tackling the 'Problem Run'. The program will particularly appeal to more sophisticated games players and railway enthusiasts.

Evening Star, programmed by Mike Male and designed by Bob Hillyer will be available in the Autumn.

Federation II — Free On-Line Demo

Federation II, Compunet's huge new multi-user space game, will become available to Compunet users, when the powerful new Compunet mainframe comes on-line.

This autumn Federation will be opened to all modem owners, on any micro, through some 80 access points nationwide.

Right now, owners of any micro can try the game for free in a limited single-user demo version.

Federation II is claimed to be the biggest multi-user game ever written. It can handle up to 128 players at once and has up to 2,500 locations, depending on the number of people playing.

Instead of the usual 'find treasure, earn points' gameplan, Federation is multi-layered. It has exploration, trading, fighting, strategy and politics and can be played on any or all of these levels.

As a traditional adventure, it has hundreds of locations to explore, puzzles to solve and treasure to find. Or players can build up a trading empire in the commodity markets of the galaxy — and in less reputable ways . . .

The really ambitious can run the economy of their own planet — or try their hand at politics and strategy on a grand scale. It's even possible to become Emperor — but what with restless natives, the arrogant Palace guard, and the machinations of warlords and merchant princes (lower-level players who aspire to the throne), dynasties are likely to be rather short-lived.

Federation is, of course, well supplied with pubs like The Little Green Man and the Floating Pint Processor, where tired soldiers and fortune and burnt-out Galactic yuppies can relax, make alliances and hatch plots . . .

The free on-line Demo of Federation II is available now to all with teletype software and a modem. It's open between 8.00 pm and 8.00 am during the week and all day at weekends (no protocol, 8 data bits and one stop bit, 300/300, 1200/75, 1200/1200 full duplex or 2400/2400). Ring 01-965 2989.

The demo is a single-user version running on a PC, with 130 locations and a limited vocabulary and action set — but enough, we hope, to give a feel of the game itself. There's a Federation bulletin board for messages and comments.

Contact: Alan Lenton (Federation II author, Multi-User Game Manager) Compunet. 01-965 8866.

Complaints are flooding in . . .

Million of dollars worth of IBM mainframe computers were destroyed when a water pipe burst and flooded the computer section of international investment bank, Goldman Sachs and Co. A cast iron pipe on the ninth floor crcked and soaked mainframes and ruined computer tapes.

A spokesman said that they were taking disaster recovery procedures and "There are a few things in the pipeline". Excluding gallons of water, we hope.

Award for Amiga?

Finalists in the British Microcomputer have been announced.

The Amiga 500 has reached the last three for the Home/Small Business Micro-Computer of the Year. For the Game of the Year Award there are three finalists Guild of Thieves created by Magnetic Scrolls, Marble Madness from Electronic Arts and Defender of the Crown distributed by Mirrorsoft.

The winners will be declared on the first day of the Personal Computer World Show and will appear in the next issue of CCI.

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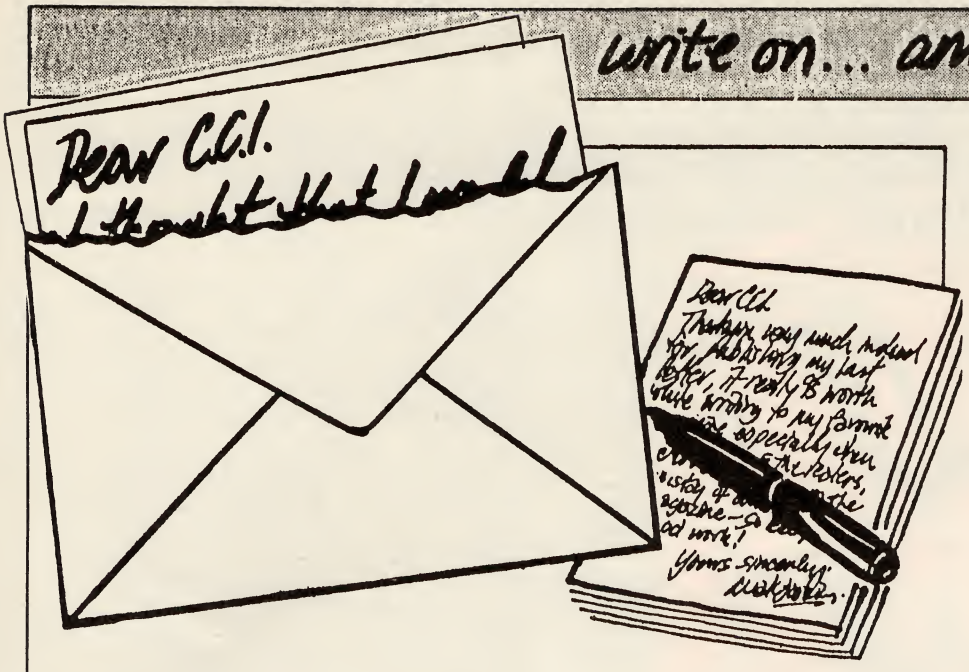


Dear C.C.I.
I am writing to you concerning my Commodore 16. Although quite happy with the machine, itself, I am disappointed with the range of games which I am able to use. Your magazine is geared almost entirely, to at least 64K. I also recently received an offer to join a club (The Home Computer Club). I would have liked to have joined, but the club did not cater for 16K.

I really want to know whether it is possible to convert my present machine to accommodate at least 64K memory, and if so how this could be achieved, and at what cost.

I look forward to receiving your reply in due course.
Yours faithfully
W.G. Maughan

Dear W.G. Maughan
Yes, it is possible to upgrade your C16 to 64K with a RAM pack. But it isn't going to do you much good if you want to play games designed for the C64. The two machines and the games written for them are just not compatible. Why? Don't ask us, ask Commodore.

Dear C.C.I.
I have bought your mag again. I have been using a Commodore Computer since November 1985 and I have tried several mags for reviews, program lists, intelligent answers, bright (without dazzling), competitions, fair advertisements, all items evenly distributed throughout the mag, and I must say you top the lot in supplying these items, unlike some.

When is Jeff Minter going to write a games program for the C128 as there is next to nothing for us C128 owners as we seem to now be totally ignored now we have followed Commodores advice and spend money to upgrade our computers for better programs I know of only two games Rocky Horror Show and The Last V8.

I know there is C64 stuff but I'm talking dedicated C128, W.E.L.L. Jeff what's the answer!! Once again well done C.C.I. keep going from dedicated young (39 years young this April) reader and fan.
N. Stone

Dear C.C.I.
I am Secretary of the "Plus 4 Users Group" (PLUG) in Hobart, where over 300 C16s and Plus 4s have been brought in the last 18 months. The group was formed this year to meet the demands of users of this increasingly popular machine and has a small but steadily growing membership.

We would be interested to hear from any Plus 4 user groups or individuals in the U.K. or wherever your magazine is read — including other parts of Australia.

The aims of PLUG are to promote use of the C16 and Plus 4, provide an exchange of useful tips, hints and information and to accumulate a library of information and software for use by our members and members of other groups.

I would be grateful if you could publish this letter or write a short article in a forthcoming issue to alert other Plus 4 and C16 users of our existence.
Yours sincerely,
Gregory P. Webber
22 Wallace Avenue, Lenah Valley,
Hobart, 7008 Tasmania, Australia.

Dear C.C.I.
This letter is to do with an advert in your June issue of CCI. The advert is on page 23 and is called the Specialist Computer Repair Centre.

On July 21st I packed my computer and sent it off with the maximum fee of £35 which the advert asks for. My computer is a Plus/4 and the money was sent as a cheque. The repair centre said on the advert that they would return my computer within 24 hours of their receiving it.

We have phoned the repair centre many times at 0527 65671, it has been engaged all the time so we phoned the operator and she tried and got the same result. When we phoned enquiries she told us that the company had gone into liquidation, so we asked if there was a new phone number for them, she said 'no'.

I noticed Mrs S. Blands letters and agreed with hers and yours view, but I think that all mail order adverts like these should be checked before being published.
Thanks for a brill mag.
M. Harvey

PS Damian P.G. of Sopp didn't know what he was talking about.
PPS Saboteur is Awesome+.

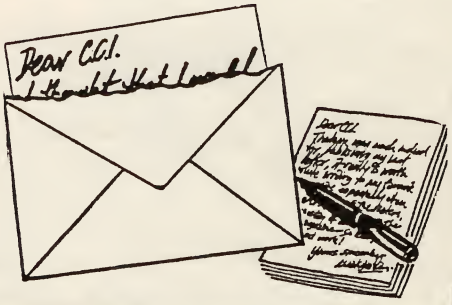
Dear M.H.
Sorry about your problem with Specialist Computer Repair Centre. We have managed to get a number for you and anyone else who had the same problem to call. It is 02572 72441 and ask for D.A.T. Wood of Latham Crossley & Davis. We hope you can sort it out.
PS Bet Damian doesn't agree.
PPS Durell are a first rate games house.

Dear C.C.I.
I have recently acquired a Commodore 64C, so I went looking for some publication that would give me an insight into the "64" and its capabilities.

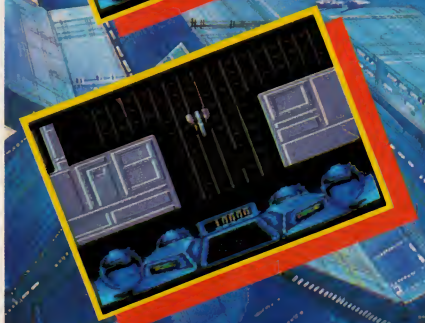
Your magazine fitted the bill nicely so I have placed my regular order with the Newsagent.

Having read this months issue, I'm glad you are going to make the listings available on cassette, very commendable, but what about listings in your previous issues will these also be made available! I hope so.
Keep up the good work
T. O'Connor

We hear and we obey, o reader! As you see in this issue we are doing exactly what you command. The listings of at least the last year shall be made available to you and to the many others who have beseiged us with the same desperate plea. We are here just to service you, o master. Anything else you require?



IMPLOSION



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Screen shots are taken from the C64 version

Dear C.C.I.
Yes, I'm here as well! I've already sent you a few programs and I'm making an assault on your letters page! Anyway, that's the formalities over with. Now... I've got a few little matters to clear up...

Firstly, drop the free software idea. While I agree that a charge could be made for monthly disks and cassettes containing the magazines' programs, I wonder if it is really worth it... the cost of blank cassettes and disks against the supposedly increased incentive to buy C.C.I. If Commodore users know what's good for them, they'll buy C.C.I. anway.

Secondly, Yes we all know you're the best Commodore mag. around, but you're not exactly ignorant of the fact yourself. Don't become complacent, and try to improve C.C.I. even more (if that is, indeed, possible).

Thirdly, have you ever considered a hardware submission section? Or is the idea of thousands of Commodore users blowing their computers sky high a little too distressing? I've made a nifty little device myself, which simulates the waggling of a joystick (remember those Decathlon-type games?). Yes, you too can see Daley Thompson run the 100 metres in under seven seconds with five images of his legs on the screen at the same time! I lent the device to a friend and I haven't seen him since. You don't suppose he's made any money out of it, do you.

And while we're on the subject of guilt, I'm feeling a bit of it myself (guilt). When I get my hands on the latest copy of C.C.I., I drop everything, and tear it apart for half an hour (not literally!), and then I might go back and read a few articles... I imagine that to some people, C.C.I. is a whole world, and involving computer "environment", rather like M.T.V. and music in America. They probably spend a month reading C.C.I. from cover to cover, just in time to get the next issue. Just how "deep" do you "intend" us to get with C.C.I.? In a few years time, they'll be admitting people into hospital with symptoms of 'C.C.I. addiction' and they'll be given a subscription to a less involving magazine, like Y?%& C&£@u/@r to bring them off it.

Your faithfully
Jonathan Living, Stourbridge
PS What do I do with these @!£%& voucher thingies????
PPS Just 'cos my letter was against the idea, don't mean I can't 'ave 'em, does it (I'd like a cassette for the Feb. to April software and a disk for the July to Sept. software, please).
PPPS Why don't you have a little competition to see who can include the most PS's in his letter.
PPPPS This last PS would make me the winner so far, would it not?

Wow, Jonathan! What an onslaught! Drop the free software offer? Wonder how many will agree with you on that! You must be some kind of saint (and very few people agree with them except in principle!) We're certainly aware that there is room for improvement in C.C.I. You will notice the efforts we make over the next few months (We hope!). We would love to include any hardware submissions you or any other reader might make. It would fill in another of the pieces in the C.C.I. jigsaw (No relation to the Comp this month). Jigsaw? Yes, we see C.C.I. as you accurately express it as "a whole world". We don't believe anyone only wants one bit of their life separate entirely from all the others, especially in computing. So we 'intend' you and the others who buy C.C.I. (Every month, please, I need my salary!) to get a total picture of what is going on in this particular scene. Some of it may seem a little offbeat, some too far out technically, some too far down the games, amusement or jokey trail. It may seem even too varied and catering for too many minority interests which don't at first glance seem yours. But, if you take C.C.I. as a whole, we try to give it enough to interest, entertain and inform any intelligent reader of a computer magazine for at least a large part of each month. And we assume all *C.C.I. readers* are *intelligent. That's our starting point. It's what makes us different from most other computer mags which seem to think their readers are a) only interested in just one area and b) have to be treated as if they are all of one single group and not a very intelligent one at that.*

There are certainly readers who like that kind of undemanding simplicity. We're glad you are not one of them. Your letter gives us your opinion (we're glad and flattered that it's favourable) intelligently in a style we're delighted to think is not so far from our own — and best of all it is fun to read. So if you're typical of our readership — hooray! Of course, we're biased but we think it qualifies for this month's tee shirt for the Letter of the Month — and we're sending you Microprose's Pirates and Mirrosoft's Defender of the Crown — both intelligent games — as a bonus.
PS Your letter is too long.
PPS So is our reply.
PPPS Yes you have got the most PSs.
PPPPS You are lucky they weren't subedited out.
PPPPPS You would have been PSed off then wouldn't you?
PPPPPPS You haven't got the most PSs now.

Dear C.C.I.
I thought I would write and let other readers know about a nice little earner that certain people are making.

There are a few companies that are advertising there great way of writing on the two sides of a 1541 5.25ins DISC. They say it will let the 1541 ignore the read write tabs, or the unpunched edge of a disc, and this it does. The thing I would like to warn other users of, is this!

The companies are asking £4.00p for the way to do the above and will send you the parts and how to do it. What you do is send them your money. I already knew how to do this but thought I would write to them with my four pounds just to see what they were up to.

What you get for your four pounds is this.

1.....20p RESISTOR and the directions on how to fit it!

Please inform your readers of this ripoff and stop the exploitations of others by the people who need it least. I have known the way to do this for about three years so if there are readers out there who don't want ripping off and want the information **FREE** all they have to do is write to me at my address enclosing a stamped addressed envelope. Please remember the stamped address envelope as I am unemployed and can't afford to pay for the postage. I will send them the required information **FREE**.

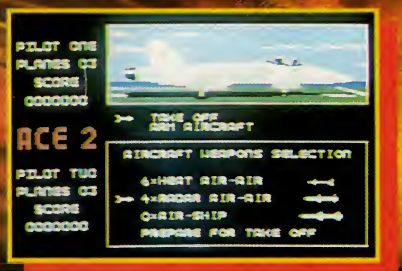
I hope this is of some use to other users out there and it stops people ripping off others. They really made me mad!

Yours faithfully,
Mr James R Strang
165 Ashton Hill Lane
Droylsden
Manchester M35 6FH.

Dear C.C.I.
Tut! Tut1 A shame on you all! To help Chris Hazell find his Simon's Basic. I point out that Calco Software has several times recently (May, Aug, Sept) offered Simon's Basic cartridge in the pages of your illustrious journal! Also he might like to try Postronix Ltd. 8 Faraday Court, Park Farm, Wellingborough, Northants. NN8 3XY, who are offering Simons' Basic cartridge and Simons' Basic Extension (disk).
Yours Faithfully
Commodore Mascall

Ouch! You're right, Commodore Mascall, Calco do offer Simon's Basic. We should *certainly know which products are advertised in CCI! Thank you for drawing our attention to it. By the way, it's terrific to have a real live Commodore writing in this magazine (we hope it's not a nickname!)*

ACE 2



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Screen shots are taken from the C64 version

ACE 2
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Dear Rae...

This month your letters are answered by Rae West. Rae is the author of three large reference books on Commodore computers; the latest is Programming the Commodore 64, following Programming the VIC and Programming the PET/CBM. All are published in the UK by Level Ltd. Rae is also published in the USA by Compute! Books.

CHECKSUMS

Dear Rae,

'I would like to know exactly how you arrive at a 'CHECKSUM' which occurs in many of your programs to verify lines of data.'

Edmund Hannah, Southampton

OK. There are several type of checksum, but they all have the same purpose — to try to make sure a program available as a printout gets typed in correctly. (Obviously it's easier to have a program on disk or tape, but — as with a book or magazine — this isn't always possible).

One type of checksum occurs in the sort of machine-language program which is poked from a Basic loader, and consists of a collection of numbers which have to be put into consecutive memory locations; so there is usually a simple loop of the sort FOR J=49152 TO 49200: READ X: POKE J,X: NEXT which reads values stored somewhere else as DATA statements and sticks them into memory, in this case fro 49152 up to 49200. If any of the data is incorrect, the program mayn't run correctly; so an obvious type of checksum is to alter this line to: CH=0: FOR J=49152 TO 49200: READ X: CH=CH+X: POKE J,X: NEXT: IF CH<>12345 THEN PRINT "ERROR": STOP. Here, CH simply adds up a running total of values and compares the result with the correct total; if there's a mismatch, something is wrong.

This method isn't foolproof — a simple total won't detect numbers stored in the wrong order, for example, or an error where one number is too small, but another is too high by the same amount. In principle, one could use checksums which are weighted; the data value could be multiplied by the location, say, and this would produce a tighter check.

Another type of checksum is used to ensure that BASIC programs are entered correctly — which can be a tricky matter, as I've explained in previous replies in this column. An example is the 'Automatic Proofreader' program in Appendix C of my book 'Programming the Commodore 64'. When a program line is entered, and Return pressed, the Proofreader prints a number at the top of the screen, which ought to match the number printed as a REM statement in the lines of BASIC. Essentially, this is a simple checksum of character values, and provides some security that a program is properly typed.

HARDWARE COMPATIBILITY PROBLEMS

After reader the item on the AMX mouse (Sept '87 CCI) I wonder if I could use "Stop Press" with my NEOS mouse?

M. Elliott, Workington, Cumbria

I have a CBM 128, 1571 disk drive, and MPS 802 printer which I require to run CP/M programs like WordStar and DBase. As CP/M outputs to a Centronic (Parallel) printer could you advise how I can use my MPS 802 serial printer.

Colin Appleby, Cleveland

I am at the end of my tether with the seemingly unanswerable problem I am having with the relationship between the Advanced Arts Studio package, a Uniprint Universal Interface (which goes into a serial port), and my Citizen 120D printer. They don't seem to like each other.

Before I bought the Arts Studio package I rang Rainbird to make sure it would work with the 120D, and they said 'Oh yes, we've had it going on our 120D'. When I loaded the program and was confronted with the configuration demands, I thought "I could time-travel more easily than work this lot out!" I phoned Citizen, who told me what to type in for the configurations. It didn't work, so I phoned Rainbird. They asked if I'd typed in the right numbers, but couldn't help get it to work. Can you help me?

D. J. Waterman, Wembley

Maybe this is one for your obscure hardware dept. I have recently bought a Seikosha GP-700VC colour printer to use with a C128/1571 combination. However, in 64 mode with programs such as PrintShop and Printmaster, all I get out is Please help!!

R. Waterman, BFPO 41

These questions are asked me from time to time; unfortunately they are quite difficult to answer, since the particular combinations of equipment involved aren't usually available to me. Even if they were, it often happens that hardware and software is upgraded without any particular indication to a buyer — for example, as software is progressively debugged by many users 'out there' improvements tend to be introduced when the previous batch has been sold. A similar state of affairs happens with hardware.

Graphics packages in particular tend to be problematical, because obviously the printer must exactly match the assumptions in the software, so in practice software, computer, interface, and non-Commodore printer must all act impeccably.

Good-quality software, supplied by organisations which do their own development work and are prepared to offer backup, for example Precision Software and Viza, is generally less liable to this sort of problem. Difficulties tend to arise more where an organisation is a publisher, taking in programs supplied by outside programmers and distributing them; in this case, programmers may become disgruntled, or lose touch, or simply be too busy, and the publisher may not be technically competent to answer questions.

To illustrate the complexities of checksums, note that the Proofreader in the book ignores space, since most programs will run correctly even if the spacing differs from the original, so a checksum which says a line is wrong because it has an extra space or two is usually unnecessarily restrictive. BUT it can happen that spacing is important —where memory is tight, or where a message has to be fitted tidily into a 40-column screen.

Of course, it you're prepring a program for publication, the process is reversed — typically, you'd enter the line listed above in direct mode, then type PRINT CH to find the correct value. Imported software often has subtle timing differences, or may assume that some hardware interface is in use, which may be popular there, but not here.

CP/M packages on the 129 should work with serial printers, provided that only simple ASCII data is used, since the serial bus happily operates with Commodore's disk drive, which shows that data transmission is basically OK. However, the configurations have to be properly set up.

for interfacing queries of this sort, I'd suggest readers try Eamonn Walsh of Brain Boxes, Unit 3G, Wavertree Technical Park, Liverpool L7 9PF (on 051-220-2500). These people specialise in connecting together equipment which is not directly compatible.

MACHINE-LANGUAGE QUERY

Dear Rae,

'This is the first time I've asked for help from a magazine, so here goes. I'm trying to learn machine-code on my Plus/4 using the built-in monitor. The problem is when I type in a BNE (i.e. Branch if the previous answer wasn't zero) I get a ?, e.g.

$1300 CMP #$31
£1302 BNE $1400

Only some locations do this — some work quite happily, e.g. BNE £13CD.'

David Glass, Elgin, Scotland

The answer is quite simple — all branch commands on the chips used by the 64-style processor chips are followed by a single byte (this helps the chip work faster). So branches can only reach about 128 bytes forward from, or backward from, the current address. In this case, the ? in effect is an out-of-range indication.

LIGHTS, ACTION, SOUND

Well, I don't know about the lights and the action, but I think we can manage to do something about the sound.

Watching the film *Deliverance* for the thousandth (at least!) time the other day, it struck me that the musical duet played between one of our heroes and one of the mountain kids would make an ideal musical soundtrack for the Commodore 64. The music in question, in case you haven't guessed, is more popularly known as the tune *Duellin' Banjos*, originally recorded by an American Country Rock/Western group called *The Dillards* I believe, cheerfully, updated by Eric Weissberg and company for the film.

Basically a guitar and a banjo interact, each playing a fairly simple riff, until they eventually get carried away by their own virtuosity and go off into the most amazing musical pyrotechnics. But there are only two instruments playing, and since the Commodore 64 can quite happily manage three different instruments at once it seemed to be a fairly simple task.

Wrong.

Getting the basic tunes sorted out was, compared to everything else, relatively easy. There are only three main tunes, really, and these consist of repeats of the notes:

CCCDEFGFE
FFFGAA#CA#A
EFGEFDECD

followed by a competition to see who can play more than three hundred and sixty notes in the next five seconds. We'll tactfully ignore that latter part.

What proved to be the most complicated thing was actually getting the right tone for each note. In other words, sorting out the wavelength and Attack/Decay/Sustain/Release parameters for each instrument. The manual accompanying your 64 blithely talks about settings of this, that and the other in order to impersonate different sounds, but you will almost always find that they quite simply do not work.

A banjo and a guitar is what we're after, and more than once I found myself wishing that, rather than the good old 64 in front of me, I was playing with something like a Fairlight, where I could actually see the envelope parameters as I fiddled about with different settings in order to try and get exactly the right sound.

All that serves as a preamble to the following program. In the absence of sufficient funds for a Fairlight, why not write a program to show exactly how a change in attack, decay, sustain and release alters the note being played. That is, sound the note and show on the screen the shape of the envelope. Hey ho, and high resolution graphics here we come.

Program Problems

Following the usual approach, what, precisely, do we want the program to be capable of doing? Read on . . .
1) Allow the user to alter the ADSR settings and play the note.
2) Show the results in h-res form on the screen.
3) Perform action 2) quickly and without loss of Basic memory.

As a lot of you may know, high resolution work on the Commodore 64 in Basic is rather slow, and so we do need to resort to a bit of machine code in order to speed things up. Again, you are probably aware of the fact that using an ordinary high resolution screen on the 64 takes up a good 8 kilobytes worth of memory: a waste of space when we're only talking about a simple (?!) diagram.

So, we have to find somewhere to store a fairly small Basic program. Ordinary Basic memory seems good enough for this, giving both you and I the opportunity to alter the thing as we see fit. We'll have to shove our high resolution machine code routines somewhere, and the favourite gap in the 64's memory, the block from $C000 to $CFFF (or decimal 49152 to 53247), is as good a place as any. And the high resolution screen?

We'll use an old trick and shove it under some of the Basic ROM, meaning that we can alter it without taking up any Basic memory. We can't PEEK it, really, but that is a minor problem. Sort of.

Let's Get Going

Using a simple collection of machine code routines (held as data statements from line 2000 onwards in the program) we can set up and clear a hi-res screen, engage that same screen (i.e. be able to use it!) and then revert back to normal again. The syntax for doing all this is as follows:

SYS 49152,A,B

where A has a value of zero if we're using an ordinary high resolution screeen or one if we're using a multicolour display. Nothing so fancy for us, so A always retains the value of zero. The variable B is used to decide the colour of the screen display, and works in the same way as POKE 53281,B for the background colour, for example. A value of zero would therefore give us a black hi-res screen, a value of one would give us a white one, and so on.

SYS 49182

This will switch us from ordinary graphics mode to hi-res mode.

SYS 49241

This clear the hi-res screen.

SYS 49357

This returns us to the normal display again *without* clearing the normal screen. Thus one can quite effectively flip from one display to another without disturbing either of the screen layouts.

After its initial setup the hi-res screen is stored under ROM from decimal 40960 to 49151. This can easily be checked by POKE 40960,255 after using the first of those SYS commands, which will cause a line to be placed in the top left hand corner of the screen. Unfortunately, using the PEEK com-

mand just returns the value currently held in ROM, and being ROM of course this means that we can't alter it in terms of the PEEK (to see what we've altered it *to*) command. Nothing to worry about, really.

Program Structure

Playing a note, and allowing the user to alter the ADSR and wavelength settings is a simple enough task for seasoned 64 programmers, and this all takes place in lines 1000 to 1056. The usual miscellania of POKEs and variable, just to play a simple note!

However, to start at the beginning of the program. After some initial REMs and character defining in lines 4 to 6 line 10 then uses the various SYS calls to set up our high-res screen. Line 12 then trundles off to two different routines (starting at lines 300 and 320) to draw the Y and X axes of our ADSR graph. Line 13 is the really important one, as this calls on four separate subroutines to draw up the attack, decay, sustain and release parts of the envelope. We'll come to those in a moment.

Line 14 just waits for a key to be pressed before line 15 switches us back to the normal screen display again. Then, line 16 sets off back round the loop once more, allowing the user to see how a slight alteration in the envelope parameters is reflected both in the sound of the note and the shape of the envelope. A visual display is always easier to understand than a written one, I feel, and seeing sound and vision combined in this way does make it significantly easier to understand how these parameters actually work.

Lines 300 to 530 are the work horses, the routines that draw up the various parts of the display, and rather than go through each one in turn we'll just concentrate on the Attack one: they all follow more or less the same set of principles.

Attack Parameter

This occupies lines 400 to 414, taking in the subroutine at line 500 on the way. In order to draw the line that forms this part of the envelope we need to know a start and finish X and Y co-ordinate. These are given in line 401, where Y1 and Y2 are fixed by the program (just makes life easier: go from 120 to 60 for attack, 60 to 90 for decay, since that takes us down to half the maximum volume, stay at 90 for the sustain, as that is what sustain is all about, and then release from 90 back to 120 again) and X1 and X2 are determined by the parameters input by the user. The starting co-ordinate for X1 is simply the bottom left hand corner of the graph.

Line 402 is a check to see whether the user has input a value of zero for the attack parameter. If he has then there is precious little point in drawing a line, so simply return from this routine.

Line 404 then works out the 'line draw' routine, working out the ratio of steps along in the X axis to steps up in the Y axis. Finally, lines 406 to 412 actually draw the line by setting up a simple FOR . . . NEXT loop to cover every single pixel in the Y direction, calculating each increment in the X direction from the previously worked out ratio, and using the routine starting at line 500 to plot the point.

Line 414 then returns control to the main part of the program.

Conclusion

The other parts of the envelope are drawn in roughly the same way, and you can easily see the theory being used to plot a point by looking at the two routines at lines 500 and 520.

Now, by carefully altering any or all of the variables used in producing a note you can not only hear the difference but also see how things are changing as you alter them. The different envelope shapes serve to indicate more precisely than words can how a note is going to sound, and so eventually you should be able to get an eye (and an ear!) for different instruments.

And *Duellin' Banjos?* I think we'll have to rely on the editor's permission and a little bit more space, and sort all that out in another article sometime. Bye for now!

P.G.

```
1 rem sounds 9ood - P.9. 27/7/87
2 Poke53281,0:Poke53280,0:dimt(60)
3 b=0:fori=49152to49385:reada:Pokei,a:b=b+a:next:ifb<>29527thenPrint"Data error"
:end
4 cs$=chr$(147):cu$=chr$(145):rem clear screen and cursor uP
5 Print cs$chr$(30)chr$(14)"InPut A/D/S/R settin9s followed by      wavelen9th .
.."
6 Poke54296,0:9osub 1000
8 Print cs$;
9 rem set uP and clear hi-res screen
10 sys 49152,0,0:sys 49182:sys 49241
11 Printcs$;
12 9osub300:9osub320
13 9osub400:9osub420:9osub440:9osub460
14 9eta$:ifa$<>"←"then14
15 sys 49357
16 9oto 5
18 Printcs$;:end
300 rem draw y axis
301 x=8:fory=0to11:forz=0to7
302 Poke 41600+y*320+z,128:nextz,y:return
320 rem draw x axis
321 y=120:forx=1to37
```

```
322 poke 46088+x*8,255:next:return
400 rem plot attack rate
401 z=0:y1=120:y2=60:x1=8:x2=8+a*5:x=x1
402 if(x2-x1)=0thenreturn
404 ratio=(x2-x1)/60
406 z=0:t=0:fory=y1toy2step-1
408 x=x+ratio
410 gosub500
411 t(y-60)=t
412 next y
414 return
420 rem plot decay rate
421 z=1:y1=60:y2=90:x1=x2:x2=x2+d*5:x=x1
422 if(x2-x1)=0thenreturn
424 ratio=(x2-x1)/30
426 fory=y1toy2:ifa=1thent=t(y-60)
428 x=x+ratio
430 gosub500
432 next y
434 return
440 rem plot sustain rate
441 z=0:y1=90:y2=90:x1=x2:x2=x2+s*5:x=x1
442 if(x2-x1)=0thenreturn
444 rem no ratio!
446 forx=x1tox2
448 y=y1
450 gosub520
452 next
454 return
460 rem plot release rate
461 y1=90:y2=120:x1=x2:x2=x2+re*5:x=x1
462 if(x2-x1)=0thenreturn
464 ratio=(x2-x1)/30
466 fory=y1toy2
468 x=x+ratio
470 gosub500
472 next y
474 return
500 r=int(y/8):c=int(x/8)
502 l=y and 7
504 b=7-(x and 7)
506 byte=40960+(r*320)+(c*8)+l
507 if(z=0ora<>1ord<>1)andbyte<>prthent=0
508 poke byte,2↑bort
509 t=2↑bort:pr=byte
510 return
520 r=int(y/8):c=int(x/8)
522 l=y and 7
524 b=7-(x and 7)
526 byte=40960+(r*320)+(c*8)+l
527 ifbyte<>prthent=0
528 poke byte,2↑bort
529 t=2↑bort:pr=byte
530 return
1000 input " Attack";a:ifa<-1ora>15thenprintcu$;:goto1000
1001 ifa=-1thenfori=0to24:poke54272+i,0:next:end
1002 input "  Decay";d:ifd<0ord>15thenprintcu$;:goto1002
1004 input "Sustain";s:ifs<0ors>15thenprintcu$;:goto1004
1006 input "Release";re:ifre<0orre>15thenprintcu$;:goto1006
1008 print
1010 print "Wavelength (T, S, P or N)?"
1012 geta$:ifa$=""then1012
1014 ifa$="t"thenw=17:goto1030
1016 ifa$="s"thenw=33:goto1030
1018 ifa$="p"thenw=65:goto1030
1020 ifa$="n"thenw=129:goto1030
```

```
1022 goto1012
1030 ifw<>65then1040
1032 ph=10:pl=255
1040 v=54272:pokev+24,15
1042 poke v+4,0:pokev+4,w:ifw=65thenpokev+2,pl:pokev+3,ph
1044 poke v+5,a*16+d:pokev+6,s*16+re
1046 pokev+1,10:pokev,10
1048 print:print "Press RETURN to carry on, and '←' to    leave hi-res screen."
1050 poke 198,0
1052 geta$:ifa$=""then1052
1054 ifa$<>chr$(13)then1052
1056 return
2000 data 032,253,174,032,235,183,138,141,032,208,141,033,208,165,020
2005 data 133,251,240,002,162,000,032,089,192,032,128,192,032,166,192
2015 data 169,059,141,017,208,169,029,141,024,208,165,251,240,005,169
2020 data 216,141,022,208,169,128,133,056,133,052,173,002,221,009,003
2030 data 141,002,221,173,000,221,041,252,009,001,141,000,221,169,132
2035 data 141,136,002,169,079,141,017,003,169,197,141,018,003,096,160
2045 data 000,169,064,133,087,169,191,133,088,169,000,145,087,165,087
2050 data 240,005,198,087,076,099,192,198,088,165,088,201,159,240,007
2060 data 169,255,133,087,076,099,192,096,160,000,169,231,133,087,169
2065 data 135,133,088,138,145,087,165,087,240,005,198,087,076,138,192
2075 data 198,088,165,088,201,131,240,007,169,255,133,087,076,138,192
2080 data 096,160,000,169,231,133,087,169,219,133,088,169,000,145,087
2090 data 165,087,240,005,198,087,076,176,192,198,088,165,088,201,215
2095 data 240,007,169,255,133,087,076,176,192,096,169,004,141,136,002
2100 data 173,002,221,041,252,141,002,221,169,027,141,017,208,169,200
2105 data 141,022,208,169,021,141,024,208,096

ready.
```


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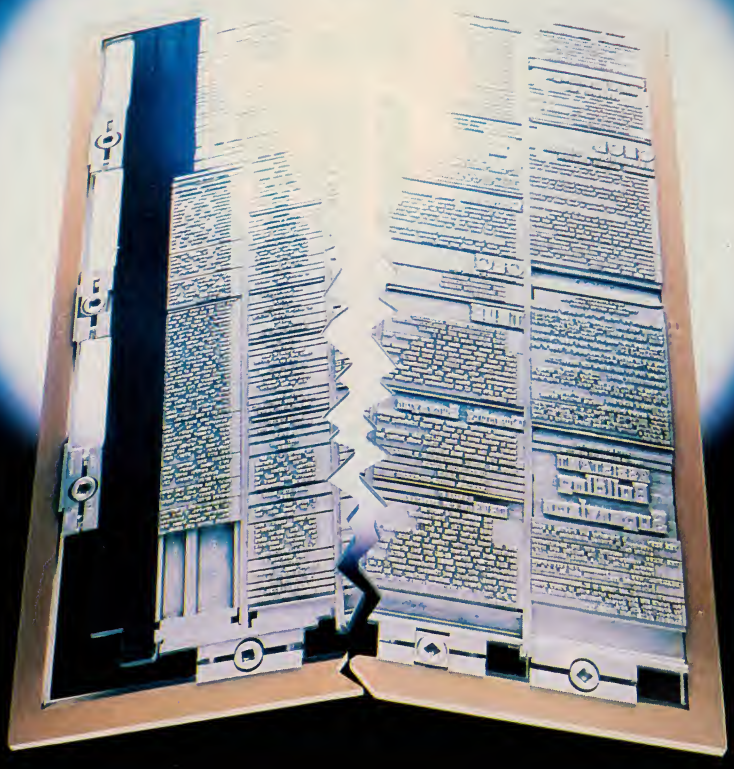

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The Jeff Minter Page

Jeff Minter who's getting wet in Wales, wails that America's not so great any more . . .

Rats. Rodents. Big, fat, hairy ones. 'None of the flags in the status register are affected by the MOVEA instruction'.

Two hours of headaches and scrambling about in some perfectly sound code just because I forgot that none of the flags in the status register are affected by the MOVEA instruction . . .

Never mind. Have a cup of tea. Have a ciggie. Thank God for Kane, Hawkins and Leventhal, and get on with the column . . .

I'm now living in the house I bought in Wales, after a fair bit of upheaval. It's raining, just like it ought to in Wales. I don't mind, I've got my arcade machines nicely set up in the living-room, and my trusty ST upon which I'm currently writing softsprite routines by way of a break from Colourspace, and with a view to writing some good ol' blasters for the beast.

Surprisingly enough, instead of me being the only computer nut around these parts as I expected, I find that there's an enthusiastic band of ST-owners around here, many of them musicians using the Pro-24 software that's rapidly becoming the standard in the music industry; the tiny local newsagent stocks three different ST magazines amongst the Farmers' Weeklies. It's a groovy place, especially when it's not raining (it doesn't really rain that much in this particular bit of Wales); I've found a shop in Cardigan that sells Mothers' Fragrance joss sticks (the best!) and Peruvian artifacts, and if you go into Newcastle Emlyn on a market day the whole town smells of sheep. Lovely.

During the move, I had to get out all my old Commodore disks and re-stash them, so I've been taking the opportunity to look back at some of the games, long since forgotten by today's hip users. It's been very interesting . . .

In the old days, d'you know that Yanks could actually write arcade games? I mean, before the Yanks decided to spurn arcade games forever, they used to produce some pretty good stuff. Repton, for example . . . not the BBC hack of the same name (why name a game after some public school, anyway?) but a Defender-ish game produced by the now-defunct Sirius Software. It's really a great game — it's slower than real Defender, but a touch more strategic in the way you play it. And excellently programmed, too — it comes straight off the Apple and, surprisingly for a Commodore game, uses software throughout for both scrolling and sprites. Consequently, there are some good FX in the game of the sort you normally can't do due to lack of sprites. Worth getting if you can still find it, and will probably be dirt cheap by now.

Strange, the way the Yanks turned off arcade games completely within the space of about a year. I went out to CES in 1983, and there was like total arcade mania — a million VCS games by a thousand different companies, Sirius and Broderbund pumpin' out the good stuff on the Commodore and Atari . . . and then, a year later, it all starts to dry up, and what do we get out of the USA now? Submarine simulations. War games. A zillion text adventures. Baseball simulations. American Football simulations. I could carry on but I'd fall asleep.

My theory is that it's all part of what I call the IBM PC ethic. Maybe the Yanks succumbed to that line of argument that goes 'I gotta do something USEFUL with my computer!' and so they all went and traded in their trusty Commodores for boring IBM PC's, which are, as you surely know, utterly useless for fast-moving arcade games. Maybe they figures that just having a bit of good, straightforward arcade fun was beneath their throbbing intellects — hence the great emphasis on simulation and strategy. I think it's a great shame . . . after all, the USA is the country that produced Eugene Jarvis (creator of Defender, Stargate, Robotron and Sinistar, and arguably the greatest arcade game designer of all time) and Star Raiders . . . and what about Lucasfilm? What of the tremendous promise shown by stuff like Fractalus and Ballblazer?

Come on America! Dare to have fun again! Get blastin'! Take a rest from the simulation and intellectual stimulation and give us thrust, hyperspace, warp-speed scrolling, lasers and smart bombs!! Give US Gold something interesting to import for once! Forget the IBM PC — it's Amiga time now . . .

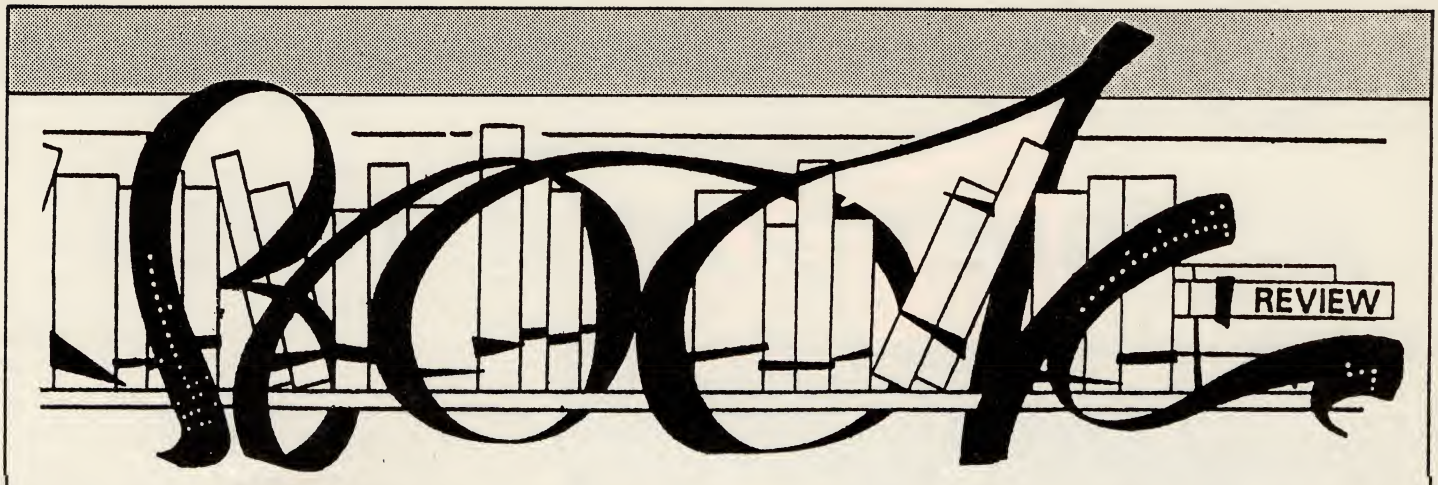
Things I'd Most Like To See from th' Yanks:

1) Eugene (god) Jarvis to write a game on the Amiga
2) Broderbund, Synapse and Sirius re-established and selling hot arcade titles
3) Possession of IBM PC's to become illegal
4) Electronic Arts to stop talking about electronic arts and actually produce some (and port DPaint 2 over to the ST while you're about it, guys)
5) A one-year ban on sports simulations and war games
6) Zippy the Pinhead for President

I'm sure you could think of a few more.

Well, that's enough of this none-too-serious look at the American scene . . . I'm off to get on with those sprite routines on the ST, but first I'll have to nip down the postbox, in the rain, to get this off to CCI.

At least there'll be lots of wet sheep.



Star Of Gypsies

Robert Silverberg (Victor Gollancz £11.95)

Until his abdication Yakoub Nirano was Rom baro, Rex Romanorium, King of the Gypsies. That abdication was a well-planned ploy to bring his people, the Romany, who had become quarrelsome and spoiled, to their senses. So, in the year 3195 A.D., when 'Star Of Gypsies' begins, we find yakoub esconced on Mulano, a world which resembles the Arctic, and in which the only other inhabitants are 'ghosts', awaiting the call which he knows will eventually come for him to return to Galgala, his home planet, and to his suitably contrite, (he hopes), subjects. But, as we all know 'the best laid plans...'. Sounds like a game scenario, doesn't it?

The story of Yakoub covers many worlds in the universe, goes backwards and forwards in time and grips from page one to the end. The Romany that Yakoub rules are not the gypsies that we know, although they are from the same stock. In the 32nd century they are still 'travellers' of a sort, for they pilot all the starships that roam the universe. They can 'ghost'. 'Ghostin' is the ability to free-fly yourself backwards in time without your body actually leaving the present. So you can, for example, be forty years old and 'ghost' back to your twelve year-old self, (who may, perhaps, be in need of help), and supply a bit of encouragement.

Living in the 31st century has other benefits as well. Fancy a re-make? That's a complete body-change not just a face-lift and a few tucks here and there as we know it today, but everything altered to please you. Don't like your face? Have a new one, or change the colour of your eyes, or the length of your legs or even your sex, if you're so inclined. Polarca, one of Yakoub's friends, turns up wearing piercing blue eyes with red rims and ears with thick black fur on them 'It took some getting used to', says Yakoub. I'll bet it did.

The core of the story is the yearning of the Gypsies, and in particular Yakoub, to go back to the Romany Star their 'home' planet which they had to leave thousands of centuries earlier when its sun blew up, but to which they know they will one day be able to return.

Yakoub Nirano is one of the author's larger-than-life creations. Destined from birth to lead his people, (he is told so by a prophetess who comes back from the future!), sold into slavery — and escaping — three times, he comes across a man's man who is not averse to the ladies. One of them, Syliuse, who appears in various guises, is his long-time love, another — Malilini — is his wife.

Running through the book is Robert Silverberg's obvious sympathy for the gypsies, the present day ones as well as those in his book. His knowledge of their language and customs shows that either his research has been prodigious.

Robert Silverberg is the author of many acclaimed and award-winning novels and short stories and he can be relied upon to provide a good read. 'Star Of Gypsies' will not disappoint his many fans.

D.M.

Reviews

SLIMLINE 64 CASE

If you're one of those people who cares about what your computer looks like, eg. if you own a designer-labelled CCI cover, or experience any feelings of grief when you spill a can of Coke over your computer, you'll be interested in Evesham Micros' Slimline 64 Case.

Yes, you can transform your stocky brown old C64 into a slim trendy beige, new 64C. The kit costs £19.95 and comprises the case, a bag of screws, and instructions.

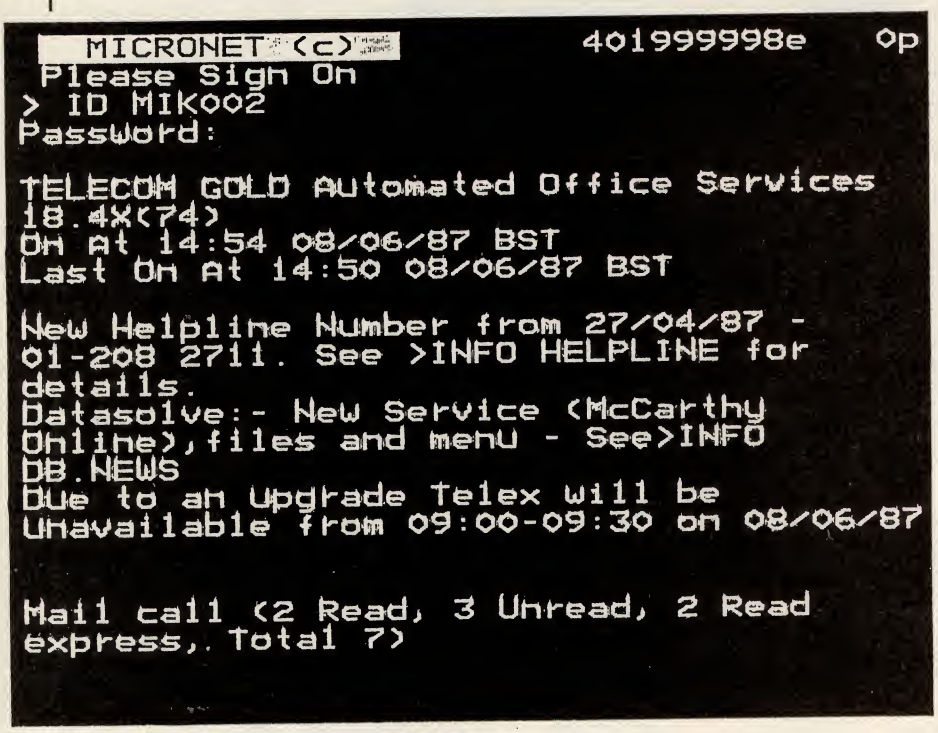
Assembly is just a matter of unscrewing your old case, and screwing on your new one. Well almost. A few wires need to be disconnected and reconnected, but this causes very little problems.

I found out from my experience that the un-cased computer must be handled very carefully, as I had some small problems with the keyboard after fitting the case. I've now remedied this, but less experienced users might have found it a slightly greater difficulty.

If you want a new look for your C64, then give the Slimline Case some serious consideration — no-one will ever know that you haven't bought a brand new 64C computer.

Price: £19.95
Contact: Evesham Micros, 63 Bridge Street, Evesham, Worcs. WR11 4SF. Tel: (0386) 765500.

MICRONET GOES FOR GOLD



Micronet is now offering B.T.'s Telecom Gold messaging service to Micronet users via a Gateway allowing direct access from Prestel. Called Interlink and open only to Micronet subscribers.

Interlink is Micronet's own gateway into Telecom Gold, offering all the standard Gold faciities including EMAIL and access to on-line information services such as Fintech and Datasolve. A major advantage of Micronet's package is that it offers access to both Prestel and Telecom Gold with one single local call from anywhere in the UK.

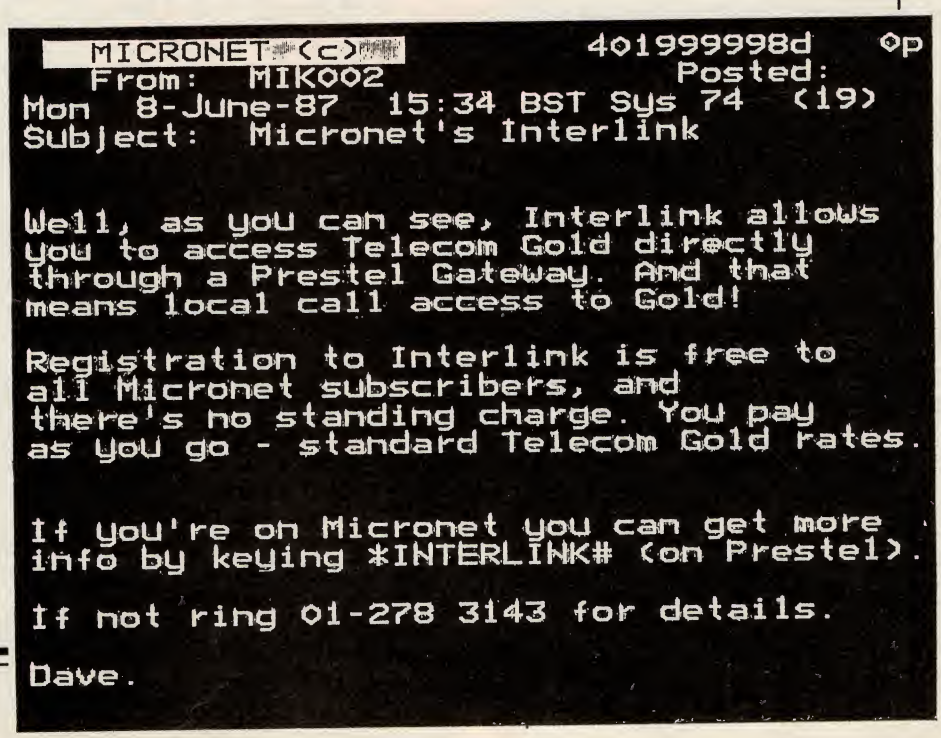
Micronet's link into Telecom Gold gives Micronet members access to a potential UK electronic mail user base of over 150,000 Telecom Gold and Prestel subscribers. "The potential of electronic mail is immense", says Micronet's Managing Director Tom Baird, "and the Interlink Gateway is a significant step towards realising some of that potential. A Micronet subscriber can now communicate via electronic mail with more than 150,000 other people or companies in this country."

For £66 a year subscribers can access Micronet, Prestel and a Telecom Gold mailbox via Interlink. Interlink users receive a mailbox on one of Telecom Gold's mini-computers (System 74) which gives them access to all standard Gold services including Email, Telex, Datasolve, Fintech and Chat. Micronet subscribers can choose between accessing Telecom Gold via the Interlink Gateway in a specially formatted 40 column mode suitable for Prestel Terminals, or directly (without using Prestel) in 80 columns.

Simon D'Arcy, Micronet's Commercial Director, said: "With the introduction of Micronet's Interlink service, Telecom Gold's sophisticated messaging facilities are now available to all Micronet subscribers. This adds considerable value to the product without any increase in the subscription, which remains at £66 a year for Micronet, Prestel and new Telecom Gold."

Micronet's tariff for Interlink, it told CCI, compares favourably with other methods of joining Telecom Gold. Registration to Interlink is free to Micronet subscribers and there is no additional monthly standing charge. Interlink users pay the standard time charges: 6.5p per minute peak (down from 11p) and 2p per minute off-peak (down from 3.5p). They also pay Gold's new tariff for data usage; each block of 512 characters passed to or from a terminal is charged at the rate of 4p peak and 1p off-peak — with the first 512 characters free.

For information contact Micronet 01-278 3143.

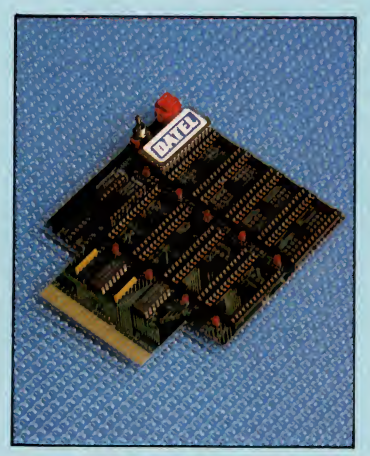


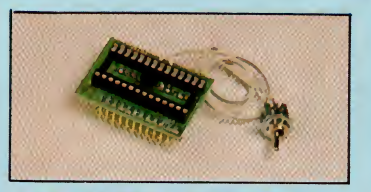
DATEL ELECTRONICS

256K SUPEROM EXPANDER

- ❑ Now you can select from any of 8 32K EPROMs instantly.
- ❑ 8 sockets to accept upto a 32K EPROM in each.
- ❑ On board operating system – no programs to load.
- ❑ Program your own EPROMs using our EPROM programmer.
- ❑ No need to have loads of cartridges – just make a selection from the Superom menu.
- ❑ Directory of utilities on power up.
- ❑ Fully menu driven on power up.
- ❑ Select any slot under software controls.
- ❑ Unique EPROM generator feature will take your own programs – basic or m/c and turn them into autostart EPROMs. (EPROM burner required).
- ❑ Accepts 2764/27128/27256 EPROMs.
- ❑ On board unstoppable reset.

ONLY £29.99

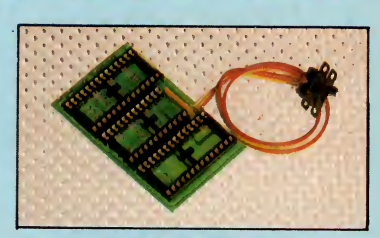




4 WAY KERNAL BOARD

- ❑ This board fits in place of the kernal in your 64 and accepts a 16K or 32K replacement kernal giving 2 or 4 different operating systems.
- ❑ Just flick the switch supplied to select between systems.
- ❑ This is a carrier only – ready to accept your own chip.
- ❑ Now you can have all your different systems available at one time.
- ❑ Full instructions. ❑ Fitted in minutes.

ONLY £8.99



5 WAY KERNAL EXPANDER

- ❑ A multi carrier board accepts up to 3 chips.
- ❑ Fits in place of original kernal of 64.
- ❑ Three sockets – one for the original kernal plus two others each accepting a 16K chip – that's 5 operating systems available at the flick of a switch!
- ❑ Fitted in minutes.
- ❑ Full instructions.

ONLY £12.99

RESET CARTRIDGE

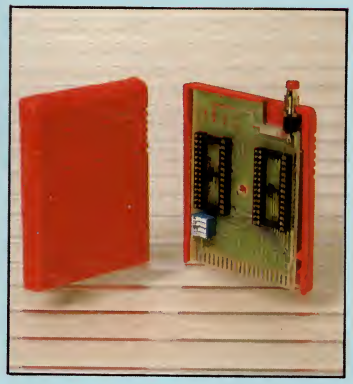
- ❑ Unstoppable reset button.
- ❑ Resets even so called "unstoppable" programs.
- ❑ Add pokes from magazines etc.
- ❑ Fits in cartridge port.
- ❑ Simply plug in.

ONLY £5.99

QUICKSHOT TURBO™

- ❑ Top quality fast action.
- ❑ Top & trigger fire buttons.
- ❑ Rapid fire/auto action.
- ❑ Suction feet for one handed action.
- ❑ Extra hardwearing.

ONLY £12.99 for 64/128
ONLY £13.99 for C16



QUICKSHOT II

- ❑ World's top selling joystick.
- ❑ Top & trigger fire buttons.
- ❑ Rapid fire control.
- ❑ Suction feet.

ONLY £7.99 for C64/128
ONLY £8.99 for C16

DEEP SCAN BURST NIBBLER™

- ❑ The most powerful disk nibbler available anywhere, at any price!
- ❑ Burst Nibbler is actually a two part system – a software package **and** a parallel cable to connect the 1541/1570/1571 to 64/128 (state type).
- ❑ What gives Burst Nibbler its power? Conventional nibblers have to decode the data from the disk before it can transfer it using the serial bus – when non standard data is encountered they are beat. Burst Nibbler transfers data as raw GCR code via the parallel cable without the need to decode it so you get a perfect copy of the original.

● Will nibble upto 41 tracks. ● Copy a whole disk in under 2 minutes. ● Full instructions.
● Regular updates – we always ship the latest. ● Fitted in minutes – no soldering usually required.
● Full or ½ tracks. ● No need to buy parallel cable if you have Disk Demon/Dolphin etc.
● Cable has throughbus extension for other add ons.

- ❑ Whether to choose FastHack'em or Burst Nibbler? Fast Hack'Em is unbeatable value as an "all-rounder" – with nibblers, 1 or 2 drive copy, format, file copy, 1571 copy etc. etc., so if you have a more general requirement perhaps FastHack'Em is for you. Burst Nibbler is a pure nibbler second to none, for the reasons stated. So if it's just making backups you are interested in, there is no other product to beat it.

ONLY £24.99 COMPLETE
SOFTWARE ONLY £12.99 CABLE ONLY £14.99

EPROMMER 64™

- ❑ A top quality, easy-to-use EPROM programmer for the 64/128.
- ❑ Fully menu driven software/hardware package makes programming/reading/verifying/copying EPROMs simplicity itself.
- ❑ Will program 2716, 2732, 2764, 27128 and 27256 chips. 12.5, 21 or 25 volts.
- ❑ Fits into user port for maximum compatibility with cartridges/Superom Board etc.
- ❑ Full feature system – all functions covered including device check/verify.
- ❑ We believe Eprommer 64 is the most comprehensive, most friendly and best value for money programmer available for the 64/128.
- ❑ Ideal companion for Superom Board, Cartridge Development System, our kernal expanders or indeed any EPROM base project.
- ❑ Comes complete with instructions – plus the cartridge handbook.

ONLY £39.99 COMPLETE

16K EPROM BOARD

- ❑ Accepts 2 x 8K EPROMs.
- ❑ Switchable to configure as 2 x 8K or 16K or off.
- ❑ On board unstoppable reset.
- ❑ Full instructions.

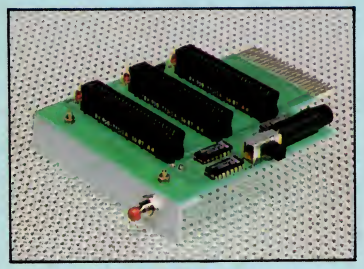
ONLY £8.99

DISK NOTCHER

- ❑ Quickly and easily double your disk capacity.
- ❑ Use both sides of your disks.
- ❑ Simple to use.
- ❑ Takes seconds.

ONLY £4.99

DATEL ELECTRONICS



3 SLOT MOTHERBOARD

Save wear and tear on your Expansion Port

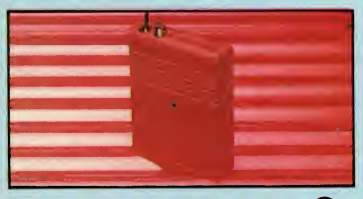
- ❑ Accepts 3 cartridges.
- ❑ Onboard safety fuse.
- ❑ Switch in/out any slot.
- ❑ High grade PCB.
- ❑ Fully buffered.
- ❑ Reset button.

ONLY £16.99

DATA RECORDER

- ❑ Quality Commodore compatible data recorder.
- ❑ Pause control.
- ❑ Suitable for 64/128.
- ❑ Counter.
- ❑ Send now for quick delivery.

ONLY £24.99



SMART CART ™

Now you can have an 8K or 32K cartridge that you program like RAM then acts like ROM!

- ❑ 8K or 32K pseudo ROM.
- ❑ Battery backed to last up to 5 years (lithium battery).
- ❑ Simply load the program you require – then flick the switch. The cartridge can then be removed just like a ROM cartridge.
- ❑ Make your own cartridges including autostart types – without an EPROM burner.
- ❑ Can be switched on or off board via software.
- ❑ I/O 2 slot open for special programming techniques.
- ❑ 32K version has 4 x 8K pages.
- ❑ Some knowledge of M/C is helpful – but full instruction are provided.

8K VERSION £14.99
32K VERSION £29.99

SMARTCART UTILITIES

A series of utility programs for use with Smartcart. Simply load in the program and you have a powerful cartridge. When you have a different requirement – load in another program and you have a new cartridge. The process takes seconds, and can be repeated any number of times.

We intend to release a range of programs. The first available are:

DISKMATE II

- ❑ all the features of Diskmate II (see ad).

Loaded in seconds – with full instructions. **ONLY £9.99**

PRINTER IV

Now you can turn your MPS 801 into 4 printers in one!!

- ❑ Alternative character set ROM – fitted in seconds.
- ❑ All four sets have true descenders.
- ❑ 100% compatible with all software.
- ❑ Descender. ❑ Eclipse.
- ❑ Scribe. ❑ Future.
- ❑ Choose any set at the flick of a switch.

"For anyone who uses their printer often this chip is a must. It's quick and easy to use and the end results are impressive" – Your Commodore, Jan 87.

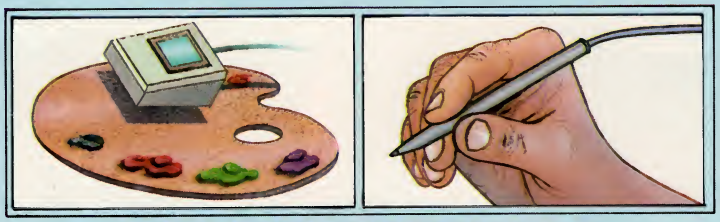
ONLY £19.99

TURBO ROM II

Turbo Rom II is a replacement for the actual kernal inside your 64. It provides superfast load/save routines.

- ❑ Loads most programs at 5-6 times normal speed.
- ❑ Saves at 5-6 times normal.
- ❑ Improved DOS support including 10 sec format.
- ❑ Programmed function keys:- load, directory, old, etc.
- ❑ Return to normal kernal at flick of a switch.
- ❑ FCOPY – 250 block file copier.
- ❑ FLOAD – special I/O loader.
- ❑ Plus lots more.
- ❑ Fitted in minutes – no soldering usually required. (On some 64's the old ROM may have to be desoldered).

ONLY £14.99



BLAZING PADDLES

A complete lightpen/graphics illustrator package.

- ❑ A fully icon/menu driven graphics package of a calibre which should cost much more.
- ❑ Complete with a fibre optical lightpen system for pin point accuracy.
- ❑ Multi feature software including:
  ● Range of brushes ● Airbrush ● Rectangle ● Circle ● Rubberbanding ● Lines ● Freehand ● Zoom mode ● Printer dump ● Load/save ● Advanced colour mixing – over 200 hues!! ● Cut and paste allows shapes/windows/pictures to be saved to/from tape/disk.
- ❑ Blazing Paddles will also work with many other input devices including; Joysticks, Mice, Graphics Tablets, Trackball etc.
- ❑ Pictures can be saved from Action Replay and edited with Blazing Paddles.

Complete Blazing Paddles & Lightpen **ONLY £24.99**

Blazing Paddles available separately for **£12.99**

TOOLKIT IV

The ultimate disk toolkit for the 1540/1541

- ❑ A disk toolkit is an absolute must for the serious disk hacker. Toolkit IV has more features than most for less.
- ❑ DISK DOCTOR V2 – Read and write any track and sector including extra and renumbered tracks. Repair damaged sectors. Look underneath read errors.
- ❑ HEADER/GAP EDITOR – Decodes and displays ALL header information including off bytes and header gap. Rewrite the entire header and header gap. Renumber sectors. Also edit any sector tail gap.
- ❑ DISK LOOK – Sort directory. Recover lost files. Display file start/end addresses. Disassemble any file program directly from the disk to SCREEN or PRINTER including undocumented opcodes. Edit Bam. Much, much more.
- ❑ FILE COMPACTOR – Can compact machine programs by up to 50%. Saves disk space. Compacted programs run as normal.
- ❑ FAST DISK COPY – Copy an entire disk in 2 minutes or less using single 1541.
- ❑ FAST FILE COPY – Selective file copy. Works at up to 6 times normal speed.
- ❑ FORMATTER – 10 second format an entire disk or format any individual track or half track 0 to 41. Redefine any of 30 parameters to create or recreate unique disk formats.
- ❑ ERROR EDIT – Quickly find and recreate all read errors including extra and renumbered tracks or sectors and half tracks from 0 to 41. Even recreates data under errors and allows you to redefine any necessary parameters.

ONLY £9.99

RAM DISK

- ❑ Turn your Smart Cart into a 32K RAM/disk.
- ❑ 32K of instant storage area for files/programs.
- ❑ Load/save instantly.
- ❑ Disk type commands: load, save, directory, scratch.
- ❑ Program data retained when computer is switched off!
- ❑ Full command set with instructions.

ONLY £9.99

DIGITAL SOUND SAMPLER

- ❑ The new sampler allows you to record any sound digitally into memory and then replay it with astounding effects.
- ❑ Playback forwards/backwards with echo/reverb/ring modulation etc.
- ❑ Now with full sound editing module to produce outstanding effects.
- ❑ Full 8 bit D to A and ADC conversion.
- ❑ MIDI compatible with suitable interface. (I.e. Datel unit for £29.99, see ad).
- ❑ Live effects menu includes real time display of waveforms.
- ❑ Line in/mic in/line out/feedback controls.
- ❑ Powerful sequencer with editing features.
- ❑ Load/save sample.
- ❑ Up to 8 samples in memory at one time.
- ❑ Tape or disk (please state).
- ❑ Complete software/hardware package **£49.99**
- ❑ Com-Drum software is available separately at **£9.99** to turn your Sampler II into a Com-Drum system as well as a sampling system.

COM-DRUM

Digital Drum System

- ❑ Now you can turn your computer into a digital drum system. ❑ Hardware/software package.
- ❑ 8 digital drum sounds in memory at one time.
- ❑ Complete with 3 drum kits.
- ❑ Real drum sounds – not synthesised.
- ❑ Create superb drum rhythms with real and step time. ❑ Full editing. ❑ Menu driven.
- ❑ Output to hi-fi or through tv speaker.
- ❑ Load/save facilities.

ONLY £29.99 (state tape or disk)

COM-DRUM EDITOR

- ❑ 24 drum sounds supplied on disk to enable you to construct your own drum kit.
- ❑ Re-arrange sounds supplied with a Com-Drum to make new kits.
- ❑ With sound sampler hardware you can record your own kits. ❑ Load/save facilities.

ONLY £4.99 disk only

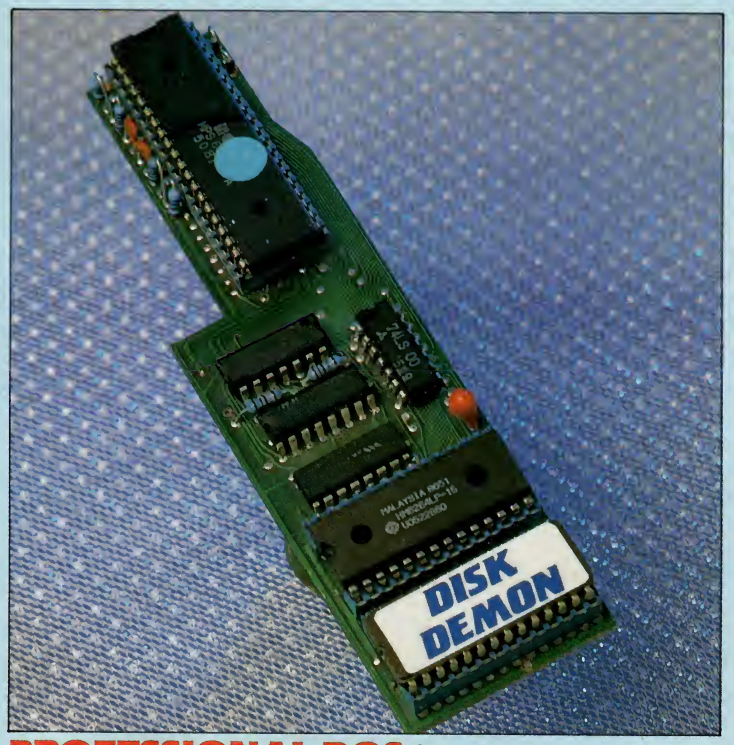
ROBOTEK 64

Model & Robot Control made easy

- ❑ Robotek 64 is a comprehensive hardware/software package which enables you to connect your 64/128 to the outside world.
- ❑ 4 output channels – each with onboard relay
- ❑ 4 input channels – each fully buffered TTL level sensing.
- ❑ Analogue input with full 8 bit conversion.
- ❑ Voice input for voice control.
- ❑ Software features:- test mode/analogue measurement/voice activate/digital readout etc.
- ❑ Excellent value! **ONLY £39.99**

including hardware/software/mic etc. (State tape or disk)

DATEL ELECTRONICS



PROFESSIONAL DOS ™ MIKROTRONIC

£64.99 POST FREE with Disc Demon operating system

"The world's fastest parallel operating system"

- ❑ Loads a typical 202 block program file in under 3 seconds!
- ❑ 60x faster load (PRG files).
- ❑ 25x faster load (SEQ files).
- ❑ 20x faster save (PRG files).
- ❑ 20x faster save (SEQ files).

PLUS AN ADVANCED COMMAND STRUCTURE INCLUDING:

- ❑ Fast format – up to 40 tracks (749 blocks).
- ❑ 16 function keys: list, run, load, directory, format, save, old, verify, etc.
- ❑ Fload will fastload files up to 250 blocks (other similar systems will only cope with 202 blocks).
- ❑ Number conversion. ❑ Reset.
- ❑ Unique built in file copier will copy files up to 250 blocks like lightning – multiple copy options – perfect for copying Action Replay files.
- ❑ Highly compatible with commercial software – can be switched out for non compatible programs.
- ❑ Perfect for use with Action Replay 3 – a typical AR3 backup will reload in about 3 seconds – yes 3 seconds!
- ❑ Speeds up other DOS functions including verify, scratch etc.
- ❑ Comes complete with superfast file and whole disk copier free!
- ❑ Screen on or off during loading.
- ❑ Enhanced command set – over 30 new commands.
- ❑ Easily fitted – Disk Demon plugs inside the 1541 and the new operating system chip plugs inside the C64/128. Fitting takes only minutes and usually requires no soldering.
- ❑ User port throughbus supplied free – you could pay £15.00 for this alone.
- ❑ Supplied complete – no more to buy.
- ❑ Works on C128/1541 in 64 or 128 mode.

FAST HACK'EM ™

C128 version £69.99

The Ultimate Disk Copier/Nibbler for C64/128

- ❑ MULTI-MODULE SYSTEM – ALL ON ONE DISK
- ❑ SINGLE 1541 MODULE
- ● AUTO NIBBLER: Copy an entire protected disk in 3 minutes. Automatically senses type of protection and treats it as normal data to produce working copy.
- ● NIBBLER: Copy an entire disk in 2 minutes. As above but parameters can be set manually.
- ● FAST COPY: Copy a disk in under 2 minutes.
- ● FILE COPY: Copy and file in 9 seconds.
- ● FAT TRACKER: Fat tracks are amongst the latest forms of protection. This mode allows you to produce a fat track on the disk.
- ❑ SINGLE 1571 DRIVE (64 OR 128 MODE)
- ● FAST COPY: Entire 1571 disk in under 1 minute.
- ● SINGLE OR BOTH SIDES: Will copy C64 or true 128 software.
- ● C64 or 128 modes.
- ❑ 1541 PARAMETERS MODULE

This is the module that gives Fast Hack'em its power. The parameters module contains dozens of "Parameter Keys" that are used to unlock those heavily protected programs. Each parameter is designed for a particular software brand or even a particular program. Other copy programs may make strong claims, but without special parameters they just can't cope. Datel will be offering updates to Fast Hack'em on a quarterly basis, featuring 20-50 new parameters plus other improvements as they're made. Prices to be £6 plus old disk.

- ❑ 1541 PARAMETERS MODULE
- ● AUTO NIBBLER: Copy an entire unprotected disk in under 1 minute. Features auto track/sector analyzer.
- ● FAST COPY: Copy entire disk in 36 seconds with verify.
- ● AUTOMATIC FASTCOPY: As above but with completely automatic operation. In fact once set up doesn't even need the computer. A must for duplicating disks on a large scale.

ONLY £19.99

DISKMATE II

The Disk Utility Cartridge

- ❑ Disk fastload cartridge.
- ❑ Up to 5 times faster.
- ❑ Fast save. ❑ Fast format (10 secs).
- ❑ Improved DOS – single stroke commands – load/save/dir/old etc.
- ❑ Redefined function keys for fast operation of common commands.
- ❑ Powerful toolkit commands including: old/delete/merge/copy/append/autonum/linesave etc.
- ❑ Plus a full machine code monitor – too many features to list but it has them all!
- ❑ Special switching techniques make Diskmate invisible to the system. Therefore it is a more compatible fastloader than other types.
- ❑ Diskmate II is £14.99.

Special Offer!!

Diskmate II can be purchased on the same cartridge as Action Replay III for **ONLY £39.99**

MIDI 64

A Full Midi Interface for the 64/128 at a realistic price

- ❑ MIDI in. ❑ MIDI thru. ❑ 2 x MIDI out.
- ❑ Compatible with most leading software packages including: Seil, JMS, Advanced Music System, Joreth, Steinburg etc.

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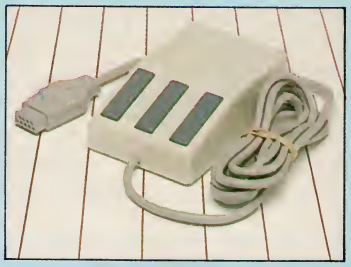

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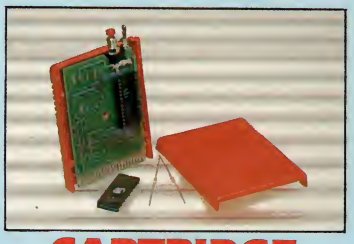

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SYSTEM	LOAD TIME	PROGRAMS PER DISK	CARTRIDGE REQUIRED?
ACTION REPLAY MK III SAVED WITH NORMAL TURBO	25 SECS	THREE	NO
ACTION REPLAY MK III SAVED WITH WARP*25	9.8 SECS	THREE	NO
FREEZE FRAME (MK IV)	40 SECS	TWO OR THREE	NO
FREEZE FRAME (LAZER)	25 SECS	TWO	YES
EXPERT SYSTEM	30 SECS	THREE	NO

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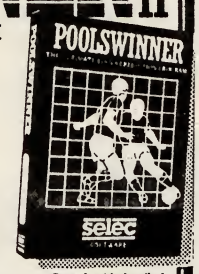

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TAPE DRIVES CATCH UP

Ken Smith takes a look at how a data storage problem was solved by some lateral thinking and a home video.

The increases in computing power over the last few years are well known and well documented. This has meant that a personal computer today, for the cost of a few hundred pounds, has more power than that of a machine costing many thousands only a few years ago. Along with this increase in power there has been an equally impressive decrease in physical size. Software has kept pace with hardware development to take full advantage of the extra power and this in turn has called for an ever increasing requirement for data storage.

This demand, has been well addressed by the Winchester drive manufacturers. Today 380MB drives are truly available in 5.25in footprint, with a certainty that a doubling in this capacity will be available over the next year or so. (To put this in context, only 3 or 4 years ago 40MB would have been thought of as high capacity at this level) the first of these physically small high capacity drives were used in mini-computer systems, but as prices dropped with the improved production techniques applications were found in the P.C. world, sot aht today it is not unheard of to see these machines with almost gigabytes of capacity. The problem is — how do you back up all this data? It is now assumed that everyone sees the need for reliable back-up.

The Exabyte Solution

Exabyte Corporation was formed by a team of tape design engineers to solve this problem. Between them they had in excess of 200 years of tape drive experience, so they were well qualified. They perceived there were several possible solutions. Optical discs were one, but they ahd the disadvantage that the only really deliverable drives were worm devices (write once read many) with the obvious disadvantages of having non erasable media. Erasable optical discs still appear to be several years away. ¼in tape drive are well accepted, physically small (5¼ size), but still relatively low in capacity (they are struggling to reach 120MB) and low in performance. ½in tape drives are also unsuitable because, although they have higher capacity, they are physically very large and very expensive. Integration into microcomputer systems is also a very complex task.

Exabyte decided to apply some very ingenious lateral thinking to address this problem, rather than to simply fine tune what had gone before. To apply this they look outside the computer industry.

There appeared to be two industries going down similar routes to achieve different results. The one was the computer industry, the other being the video recording industry. The VCR manufacturers had very effectively addressed the problems that they had faced, that of being able to put large amounts of data onto physically small tapes, reliably at low cost. The equipment had towork in inherently harsh environments, the consumers home, and to be "manufacturable" in very large volumes to meet the worldwide demands for video recorders.

The computer industry had traditionally laid data onto the tape by means of passing the media at high speed across the head, and stepping the head down to produce several tracks at parallel to the edge of the tape (Serpentine Recording). This method was not suitable for VCR recording, as to lay data onto the tape it would have to be moved at such a speed that it would stress the tape, this method also restricted the numbers of tracks, therefore the amount of data, that could be put on the tape. Large expensive mechanism would be needed to achieve the performance and this would have made the product unsalable for home use.

The VCR industry came up with a solution called Helical Scan. This meant that instead of having fixed heads they rotated the heads at high speeds at an angle to the tape.

The tape is then passed across these moving heads which produces lines of data drawn across the tape at A 5° angle. This meant that with the head rotating at 1800rpm the tape could be moved at a slow speed of less than ½in per second but achieve an effective tape speed of 150 inches per second. (computer ¼in tape runs at only 90 i.p.s.) helical scan therefore gives higher performance, with inherently greater reliability.

The VCR manufacturers also found that existing cartridges did not meet the high specifications that they required. The ¼in computer cartridge for example has only just reached 12,000 flux changes per inch. Therefore a new 8mm cartridge was developed with a very high specification, that will not be listed here, but has for example 54,000 flux changes per inch, more than four times better than ¼in computer tape.

Exabyte decided to look closely at this development to see if there was anything the computer industry could learn from this. They found that the 8mm cartridge far exceeded their best expectations. The basic mechanism looked very reliable, and as around 2 million of these units have been shipped world wide, this

is obviously the case. However when they looked at the electronics, although very adequate for a VCR they found they were not suitable for computer use, i.e. a few blocks of bad data on a video equate to a white mark on a single picture frame not visible to the naked eye, however this in a computer application could be thelast few figures on a ten page calculation which would give obvious disastrous results.

So Exabyte decided to combine the best from the video world, with the best from the computer world electronics to provide a solution to the back-up problem.

They have taken a truly well proven tape mechanism, which is only slightly modified. It has the heads re-aligned to provide a read after write check, to ensure data integrity plus a servo head to write servo information on the tape to elevate the old tape problems of non-interchangeable media, and an eras bar toensure the drive is only presented with "clean" media. The electronics are their own design. This provides the ECC (Error Correction Code) which is a very sophisticated mathematical formula that corrects large areas of bad data, (producing data reliability figures that are up to 10,000 times better than some of the present tape drives. The drive has a SCSI interface (Small Computer System Interface) for high performance and ease of integration into computer system.

All this has been mounted in an industry standard 5¼in size and gives a capacity from 250MB to 2.3 Gigabytes — dependent on tape length. The media is the standard 8mm cartridge and can be purchased from any High Street retailer. media costs less than ½ pence per megabyte.

This now means that the microcomputer user now has access to data storage and back-up only previously available to the large corporate user.

After two years of development they have taken the concept through from an idea to a production item, a truly quantum leap in tape technology. That could mean they are at the start in a new era in tape technology.

Ken Smith is managing director of Phase IV Systems which is the UK contact for Exabyte. Anyone wanting further information should contact Phase IV on 0582-471169.

GROWING ONLINE DATABASES

The online database services industry is moving into a period with extraordinary growth potential. This is one of the many conclusions drawn in a study just completed by International Resource Development Inc., a market research and consulting firm located in New Canaan, CT. IRD's 147-page research report comments on the fact that although the online database service industry has experienced solid growth in recent years, its true potential has not yet been tapped. One area where rapid growth is expected to occur is in marketing. While databases have long been used for list generation, demographic and other purposes pertaining to marketing, additional valuable capabilities are only beginning to be recognised. For instance, when a consumer fills out a coûpon or dials an "800" number to place an order, the information can become part of a database and be used later on for a variety of marketing purposes. "Databases have traditionally *provided* data," says Kenneth G. Bosomworth of the IRD research team, "but this new application means its function is changing. Now, databases are being used to *gather* data."

Privacy

Using databases to "gather" data raises a perennial issue — privacy. Once again, technology is making it possible to collect data in a way to which many people might object. Consumers can request that their names be excluded from the various types of lists, but the procedure for accomplishing this task tends to be relatively *ad hoc*. Under growing pressure from consumer groups, some countries have introduced this aspect of ths issue of privacy as a matter for legislation. Marketing trade associations vigorously oppose any formal restraints and claim the industry will be able to regulate itself to the satisfaction of all concerned.

The collection and use of information about citizens, by both public and private organisations, is so much a part of today's society that it would be naive to think the process could ever by substantially reversed. Now, in an ironic twist of fate, the attempt of citizens to regain some measure of control over how information about them is being used may actually turn into a profit centre for purveyors of that information. In the US credit vendor TRW recently launched a consumer service known as TRW Credentials. Among other features, the service alerts consumers every time their credit file has been requested. While this service does not prevent the information from being disseminated, it may help consumers to understand some of the decisions made by their creditors. "The irony in this service," says IRD's Bosomworth, "is that TRW can utilise the data on Credential customer requests and resell it to marketing people."

Of WORM and Worse

When is the online database services industry not what it's supposed to be? When it's not online. Could this ever happen? According to IRD, there is the distinct possibility with the emergence of optical media. CD-ROM is currently, and correctly, viewed as the major optical media threat to online services. Nevertheless, a threat to a medium is not necessarily a threat to a business.

CD-ROM isn't the only potential threat in the optical media arsenal. WORM (Write Only Read Many) disks could also play a part. A WORM disk is basically a storage medium, not a publishing medium. Data must be copied to WORM disks rather than being reproduced from a master. Thus, unlike CD-ROM, they offer no economies of scale. "Still," IRD points out, "for applications which only require a few copies of the data, reproduction on WORM disks may be more cost-effective than on CD-ROM. Furthermore, WORM disks have the advantage of making it possible to combine proprietary and public information."

Further details on the report Online Database Services Markets.

Contact: IRD at 21 Locust Avenue, Suite 1C, New Canaan, CT 06840 USA. Telephone (203) 966-2525; Telex 64 3452.

Feature

RIGHT FROM THE WORD GO!

Where do you go from the top? Well, if you don't want to head on down, you go west, young man and/or onto bigger things. U.S. Gold may be counted a giant amoung U.K. or even European games publishers but what does the name U.S. Gold mean in the good old U.S. of A.? Not a lot. It's name cannot get the company a whole load of advantages among the American games-players. How would British Gold grab you? It's true there is English Software but, ironically, even that is distributed by — guess who . . . yes, U.S. Gold!

On this side of the transatlantic pond, U.S.A. is known for the stuff it brings over and if you think about it, had it carried on with its traditional course — and 3 years in software publishing *is* traditional! — of licensing games from the States and releasing them in Europe, it really had nothing to send back into that biggest and richest of all software markets, where good software is 40 or 50 dollars a throw. And there is gold — real Fort Knox-style U.S. gold — in them there Rockies just waiting for some smart Brummagen operator to pan out and pick up.

So, U.S. Gold, with its usual flair for marketing and good profitable ideas has come up with a solution and a terrifically suitable label name to base it on. And as U.S. Gold doesn't do things by halves, it's starting off with some golden advantages. As Tim Chaney, U.S. Gold's Operations Directors says "GO!" as the new label is to be called, "is a major happening."

The idea, or at least the beginning of the idea, is that for the first time really in its history, U.S. Gold will go out and source its own games and probably other software too. Previously, it had always licensed everything. Now it is going to create its own product line under a name that it will be able to use even in the U.S.

Major Properties

GO! will not stop licensing titles however. It has already advanced plans for tying up some of the top names in the world and not just the computer world. Major toy and film properties are in its sights as well as smash hit coin-op successes. It has already captured one of the really powerful arcade presences, Capcom, and has blockbuster coin-op conversions planned for three of the most popular arcade games ever — Sidearms, The Speed Rumbler and Bionic Commandos.

Sidearms, as any coin-op fiend will tell you, is a desperate battle between the human race and "Bozon" who intends to exterminate all living beings on Earth. The Speed Rumbler is set in the 21st century where a terrorist group mercilessly attacks peaceful towns. Bionic Commandos takes you into enemy lines to destroy super missiles which threaten your country and you've nothing to help you — except a bionic arm! Go! clearly intends to make the aggression latent in us all a profitable business. All these games are getting the U.S. Gold — sorry GO! — money-no-object-we-want-the-best treatment which should bring them as really worthwhile games to the demanding public who expect value for money. GO! leads off its assault on the global games players with Trantor. GO! believes this game is so good that it will stretch the technical achievements in graphics and gameplay on the well-established machines like the 64. It is, incidentally, created by the highly respected Probe Software who are said to be the most innovative U.K. software programming house. Probe are, we hear, looking for some really wiz programmers — lots of them — no doubt to satisfy the growing requirements of GO!'s plans. So if you are good and want to GO! . . .

Six Heavy Titles

After Trantor the next release on the GO! list will probably be Wizard Warz which Tim Chaney decribes as "A graphically superior Ultima IV." We will also see Captain America from Marvel Comics, the Mattel toy Bravestar and the No. 1 selling toy in the U.S. Lazer Tag. Big names indeed. U.S. Gold's already established link-up with the giant American software company Epyx (see CCI September) will give GO! immediate access to the major markets in the U.S. This means that without the problems of setting up their own organisation, GO! can start off high profile and a high seller. That will have a direct consequence on its games and on you the game player. For if it is almost guaranteed big sales, unlike most new software companies, GO! will be able to spend whatever it takes to get the very best of U.K. or European software and that will quickly be poured onto the U.K. and the export market. By 3 December, Tim Chaney hopes to have released six really heavy titles. Probably, no other just started software house could contemplate such a launching pad of new quality games.

The results of the big sales and the extra cash that comes from them ought to be good news not just for U.S. Goldites but for everyone who plays games, too. It means that there will be more competition which should raise standards. It means that there will be ever greater amounts of pound and dollar and yen notes available to buy better licences; to hire better programmers, to pay for the extra time needed to get the very best out of them — which can be very expensive indeed, especially on the coming machines like the Amiga or the ST. It means that there is going to be a whole raft of first class new games hitting the screen world which can certainly use them. For, with the growing power of the Budget labels there is a general feeling that the games playing public is being drowned in a flood of mediocrity that people will buy just because it is cheap. And

that certainly isn't going to be GO! style. GO!, on the contrary, is looking to keep its standards high and its release list relatively short. None of this one-a-week-it-doesn't-matter-what-it-looks-or-plays-like-just-just-get-it-on-the-street business. GO! will release only 20 or so games a year but it still plans to make more than $10 million a year out of them in the U.S. alone.

Bigger Plans

GO! will not just broaden the U.S. Gold empire's scope in the computer software field. Tim Chaney, whose baby GO! is, has other and bigger plans. As yet he's not prepared to reveal all the aces up his sleeve but for the first time they will carry U.S. Gold out of the computer software business and into other areas of entertainment. Informed sources tell us that this may mean venturing into the 'brown goods' world. That means things like hi-fi, CD, TV, video and so on. So GO! could be producing music or interactive products anything, in fact, that is entertainment.

Could be we'll see ex-rock musician Geoff Brown, U.S. Gold's founder and boss, achieving his ambition and getting back into the music business. Last year in an interview with CCI he commented that there were certainly other aspects of entertainment into which U.S. Gold might move. GO! clearly has the potential for them. And with U.S. Gold's traditional hunting ground — the full price games market, under attack and changing fast, GO! is obviously designed to provide the springboard into new opportunities.

Tim Chaney sees GO! as a means to get to a whole audience starting with the youngest kids and their latest toy crazes onto bigger kids in the teens and their computer games and then up to young adults who have other areas of entertainment spending. The latter are, of course, more demanding and sophisticated — and they have lumps more cash to blow as well. GO! intends to give them and the others the chance to entertain themselves through the whole range of miracle electronic means that are here now or are just around the corner. In a suitably space age description, you might say that, from now on, all ages and all tastes will find that all entertainment systems are very much GO!

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**Popular Computing Weekly*, 22-28 May 1987. ***Subject to availability.*

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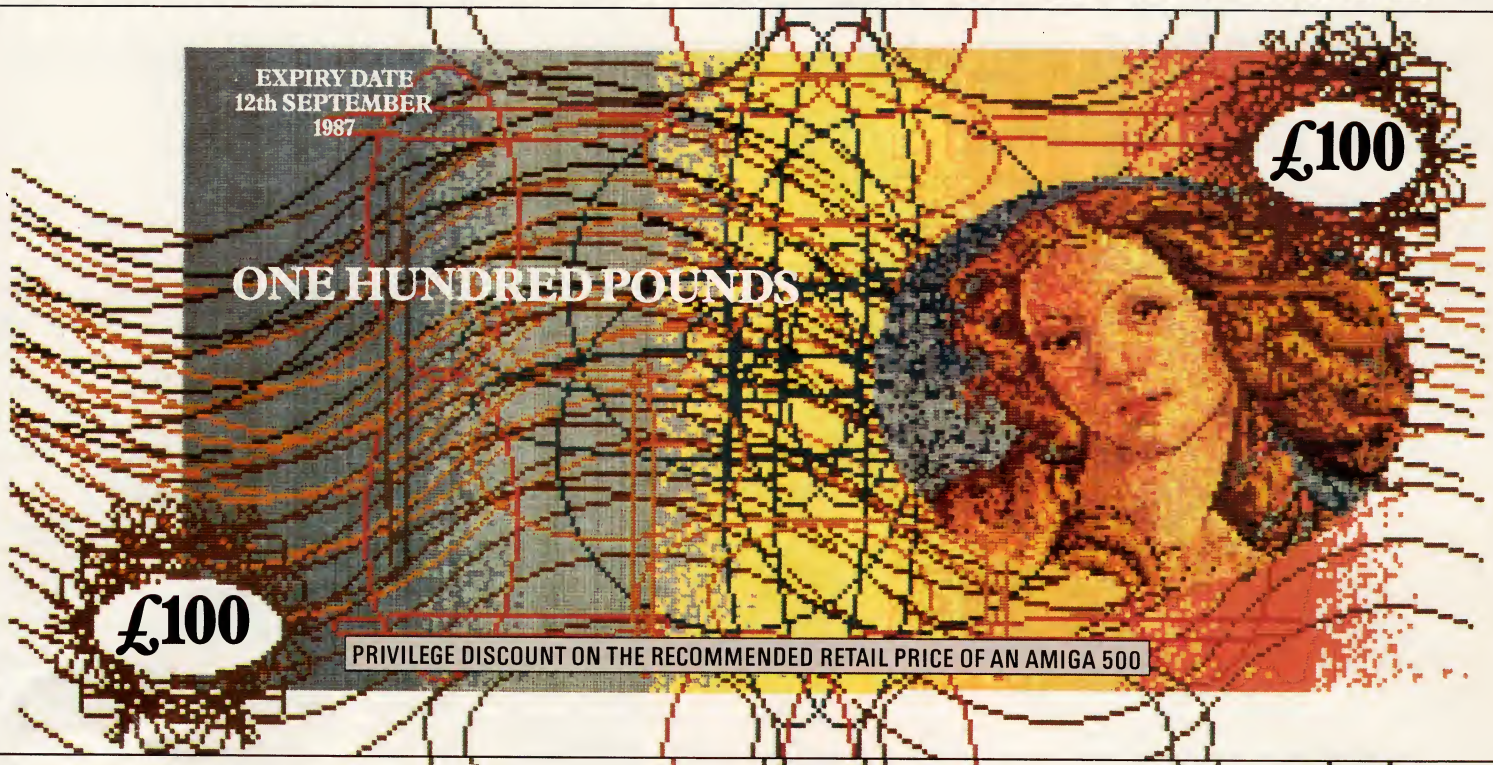

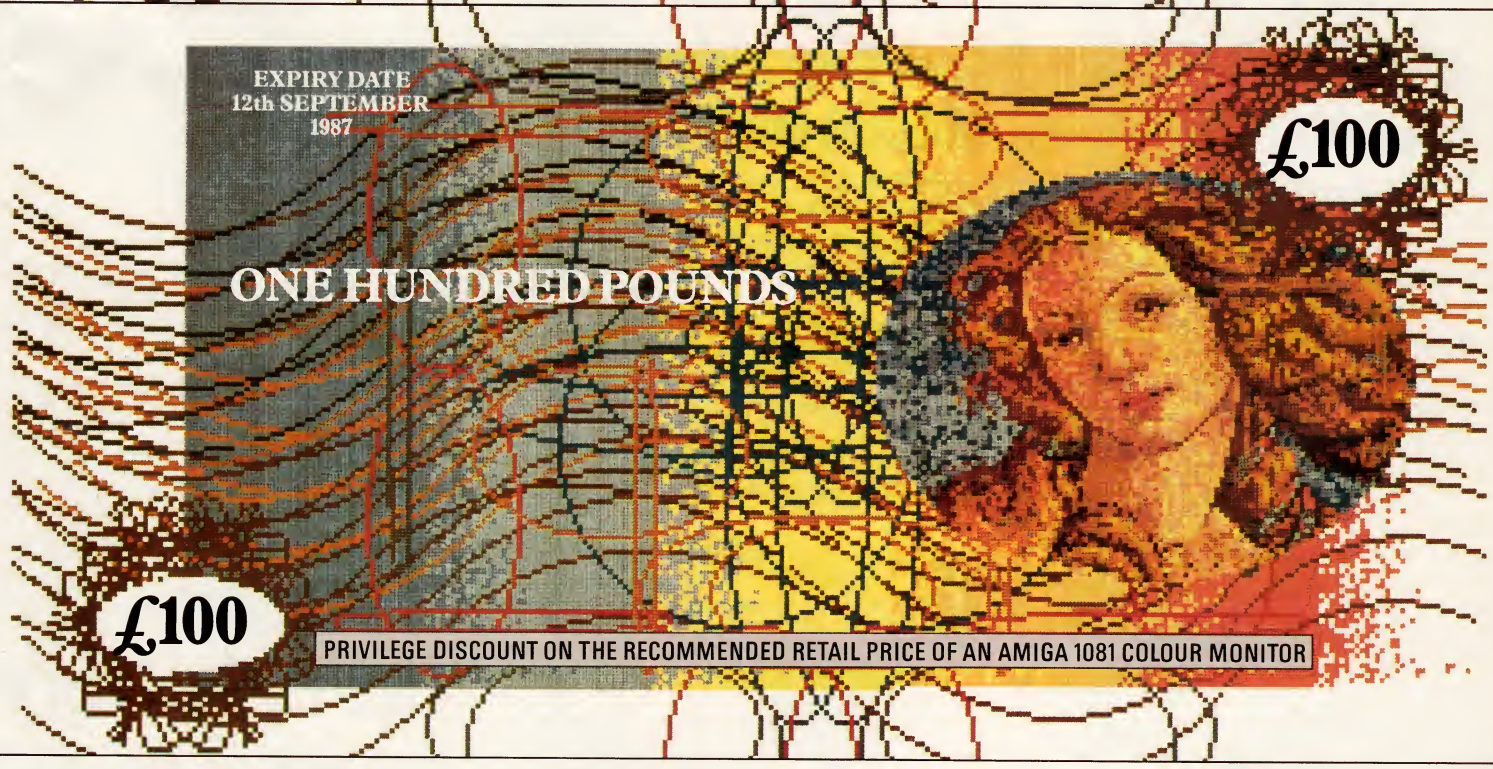

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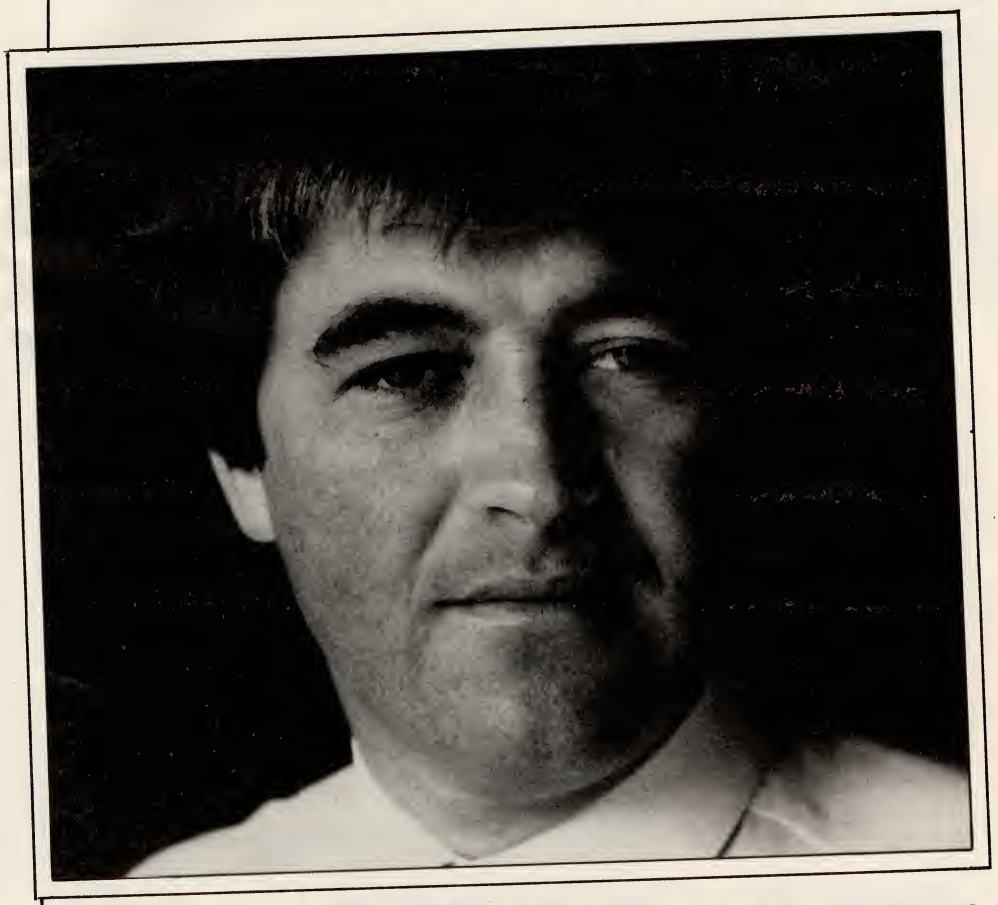
THE NEW MAN AT COMMODORE UK



Steve Franklin, the newly appointed Managing Director of Commodore UK spoke of himself, how he sees CBM and his plans in an exclusive interview with CCI.

It is not so much that there is always something new to say about Commodore but that there is always someone new to say it. In the last three years, CBM UK has had six bosses — four general managers and two managing directors. Steve Franklin, Commodore UK's latest MD does not seem to worry over the frequent past changes. He is experienced in the computer market and is very well aware of its problems and tendency to rapid and dramatic change. "You've got to understand this industry to be in it," he says, meaning that the computer business is not quite like any other; that its rate of growth and change alone makes for special difficulties but also offers special opportunities.

His considerable experience started with big names like Xerox and Granada where he concentrated on the business side. He worked for eleven years with Xerox. They gave him, he says, an excellent grounding in the whole business field. "At Xerox, we knew how to listen... We were trained in business skills..." When he joined Granada, they were setting up their Business Centres — superior High Street computer shops. In the years he stayed with them as Sales and Marketing Director, the number of people employed rose from 23 to 180 and the sales from £2 million to £20 million. "That taught me how to run a business," he comments.

It is the business field rather than CBM's more recent greater involvement in the mass consumer market that is likely to prove Franklin's initial strong point. But one of the reasons he was headhunted was to get CBM back to where its name can be true again — Commodore *Business* Machines; to bring back the great days when the business personal computer meant Commodore or rather its ubiquitous PET.

Two Divisions

To put the company on the road to this recovery, he has split CBM UK into two separate divisions. The mass market is the target for the 64C, 128 family, the A500, and the PCs 10 and 20. That side is headed by Tom Hart, an experienced CBM stalwart. The top end computers, the PC40/40 and the Amiga 2000, will be aimed at the corporate market by the Business Systems Division. Commodore's new MD is very conscious that it will not be easy to break back into the market that CBM once dominated — the personal computer in the big company office. "It's not going to happen overnight. It will take time... But the 40/40 is an AT clone... and the 'We've got to have IBM' has gone... The 40/40 is one of the most powerful machines in the world of its kind... I can see no reason why the corporate accounts cannot be impressed with it... But we're not here to take on IBM head to head, we're here to carve out a niche for ourselves... There are millions of AT's out there now... People could buy our AT's for compatibility."

At a slightly less formidable level, he sees different competition. "If you go into a major retailer, it's Amstrad, Amstrad... The small businessmen still go to the High Street to buy their PC's and we should offer an alternative to Amstrad. Our products are well-made, metal-casing and so on..."

He is confident that CBM can get back in business. "Even the corporate accounts will come through..." He points out that a great deal depends on the support a manufacturer gives. "CBM has taken on five senior sales managers to help the dealers penetrate this profitable business market. CBM will demand high standards of service and high sales from its distributors — each will be required to sell around £1 million of products a year and each dealer will have to find customers for about £100,000 of Commodore PCs and Amiga 2000s. Every dealer will have to have at least one Commodore trained technical person to deal with service and also a trained member of the sales staff.

When the business buying season starts, at the beginning of next year, Commodore's Business System's Division will move into gear with a strongly backed marketing campaign. "To get into the business systems market isn't going to be easy," Franklin admits, "but, we can do it providing we get our

CONTINUED ON PAGE 46

THE NEW MAN AT COMMODORE UK

—CONTINUED—

products and reliability right... In Europe, last year, we were the third largest supplier of micros."

European

Steve Franklin is probably more Europe conscious than most UK businessmen. He studied at Madrid University and is married to a Frenchwoman, his second marriage. He speaks Spanish and French and loves both countries. He looks tanned and fit, having just returned from holidaying at his Spanish home in Marbella on the Costa del Sol.

His European background could have helped when he was recruited to replace Chris Kaday, CBM's last MD who departed suddenly for a career in PR. There is, every two months, a meeting of Commodore's European country bosses and it would have done him no harm to be able to speak to some of them in their own languages. He also realises how closely Commodire in the UK's fate is linked internationally. "If CBM UK is strong, if we are stronger in Europe, that helps everyone. UK and Germany are our two biggest markets... but Italy is doing well... Maybe we can learn from what other countries are doing well..."

The European connection emerges as a positive factor when Franklin answers questions on CBM's rumoured interest in sponsoring the English Football League when the newspaper Today pulled out. He agrees that the £4 or £5 million needed for the 3 year sponsorship might be beyond the UK marketing budget but he points out that there is a much larger European marketing budget for important opportunities. After all, the other heavyweight Commodore country, Germany, sponsors the Bayern Munich football club.

Even the interest that CBM UK showed in a sponsorship of such size is a pointer to bigger ambitions than the recent not-too-happy past had contained. "We had two bad years but now we've had five consecutive quarters of profits." He is referring to the main Commodore company based in the US. In the UK, however, things are beginning to look up too. "Our distributors tell us they are selling five times as much now as last year."

Aggressive

What has brought the change? It can largely be attributed to the Amiga 500, already nominated as the home computer of the year in the British Microcomputer Awards. It is on that machine that many people believe Commodore in the UK as well as internationally is betting its future.

Franklin is confident that it is a good bet. "The A500" he says flatly, "is the ultimate in home computers... It will generate a new level of home computing... The graphics, the power of 1 meg of memory... It can even upgrade to 8 megs — that makes it right for small business..."

There will be from now till Christmas an increasingly heavy marketing campaign. "Commodore will be aggressive... One of my first objectives will be to get aggressively into the market... We're going to establish Commodore in the home market as No 1. CBM UK is coming out of a two year hiding..."

One of the first signs of this is the special voucher offer to Commodore owners of £200 off the Amiga 500 and monitor which are included in this issue of CCI. This gives existing Commodore owners the opportunity to upgrade to the A500. There will be other 'aggressive' approaches to other computer owners to bring the new home machine to their attention too.

"The 500" Franklin says, "is the third generation of home computers... Yes, you'll pay more for it than the ST but you'll get more... It's for the age group of 13 upwards who want a little bit more, who are a bit more sophisticated, who want to do their own programming... want digitised graphics, digitised sound! It can even do a security system for your house which tells you which window you've left open! We're trying to attract people whether they are Commodore owners or not... It is a quality product!" The 500 will dominate the Commodore stand at the PCW Show, where, some people consider perhaps unfortunately, CBM's main emphasis will be towards business. "But there will be an arcade for kids to play games on", Franklin points out.

For a while the A500's were in short supply. Some were imported into the UK from other countries. Franklin points out that anyone buying these — they are 220 and not 240 volt — have no claim on CBM UK for the warranty. "I want to make sure the Commodore users are aware that if they decide to buy a 'grey import' we will not take responsibility for it... If they find one they should report it... and the dealer — if he is a Commodore dealer — will not be one for long".

While he is obviously an enthusiast for the A500, "I took one home and my 11-year-old son knew everything about it in three hours!" He is also keen to make clear that the 64C will not be dropped. Prices for this machine are falling and it is already in the shops at under £150. But Franklin does not see the A500 pushing it out completely. "Though the 64 is five or six years old, it is still the best first time user computer on the home market at not too expensive a cost. It has the most software. It's a super machine for the 8 to 13 year olds. It has sold 10 million worldwide. It is the largest ever selling computer in the world! I can see the 64 going on for two or three years yet!" He agrees that by then it may well be sold at under £100...

"I'll speak to people myself!"

Franklin is especially forceful in his emphasis on 'Quality'... of product and of service to the end user... But, he points out, that "If you buy an electric kettle you don't send it back to the manufacturer if there is a problem, you take it back to Curry's where you bought it. The same applies to a Vauxhall... You can pick up a £10,000 car and something can go wrong. You don't take it back to Vauxhall but to the dealer. If something goes wrong with a Commodore and its under warranty, for heaven's sake take it back to the dealer. Then if you don't get satisfaction call us. I'll speak to people myself! We'll do something about it!"

Steve Franklins's newness means that there are areas of the Commodore scene that are unfamiliar to him but his experience of the computer industry means he starts with a grasp of the essentials and a considered view of the future. "I have a vision of the UK... We are in front of most countries in computing especially in software... we do have something going for us, we are very good at high tech... wherever possible I'd like to see the 9 or 10 year olds all computer literate... The Amiga 500 is the complete home entertainment centre and not just for games... It's got programming capacity... at home or at school... when they leave school they're going to use computers... They will have a big advantage if they already know how to use them... And the computing industry is never going backwards... It's going to get bigger, more sophisticated... In the next three years, I can see us re-vamping the whole industry... He turns back to the present "I'm here to re-build Commodore as the major supplier of home micros — and give the end user a good deal. To me it's a challenge... I never shy away from the hard things. I've enjoyed them. We're really starting again... I've been left alone to re-establish the UK as I see it — within corporate guide lines. If it doesn't work I've only myself to blame..."

Steve Franklin has set himself or been set a tough task but he is confident that he can do it. He says of CBM UK's recent difficult times, "I wouldn't have come if it was going to be the same... I see this for the company and myself as a very big opportunity... Unless we're really bad or make serious mistakes, there's one way it can go..."

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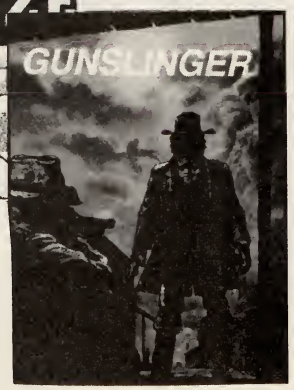

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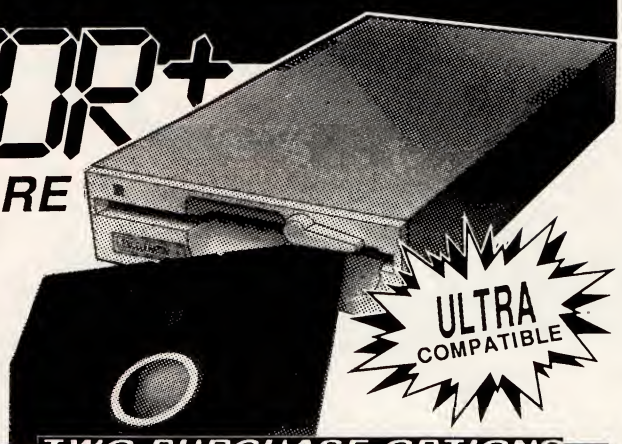

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Charts

The fastest riser of the year so far is . . . Leaderboard — sorry *World Class* Leaderboard. US Gold's neverending story goes on and leaps straight into the Big Number One. It just shows that class (world class!) tells. The budgets are solidly popular with Milk Race climbing three places and three other entries including the new Run for Gold. Another new climber is US Gold's other top release Road Runner but it's Ocean with three places out of new top fifteen 64 titles that comes up trumps. Watch out for Microprose's Pirates, Epyx Epics and the next month's release of California Games — all are likely to move up fast. Mirrorsoft's Defender of the Crown is starting to sell well for a disk only (so far) game.

★ = New Entry

C64

	GAME TITLE	COMPANY		Price(£)	Rating
1	World Class Leaderboard	US Gold	★	9.95	Mega
2	Last Ninja	System 3	↓	9.95	Awesome
3	Milk Race	Mastertronic	↑	1.99	Dodgy
4	Barbarian	Palace	↓	9.99	Crisp
5	Roadrunner	US Gold	★	9.99	Mega
6	Game Over	Ocean	★	8.95	Crisp
7	Wizball	Ocean	↓	8.95	Mega
8	Elite 6 Pak	Elite	↓	9.95	Mega
9	Four Great Games	Microvalue	↓	3.99	Mega
10	BMX Simulator	Codemaster	↓	1.99	Mega
11	Run for Gold	Alternative	★	1.99	7/10
12	Living Daylights	Domark	★	9.95	Crisp
13	I. Ball	Firebird	★	1.99	Mega
14	Head Over Heels	Ocean	★	8.95	Crisp
15	Zynaps	Hewson	★	8.95	Mega

C16

Not surprisingly Gwnn hits the top at £1.99 pushing Monty off its perch. Tynesoft's new entry Spy v Spy is in big demand too.

1	Gwnn	Mastertronic	↑	1.99	Mega
2	Monty on the Run	Gremlin	↓	6.95	Mega
3	Terra Cognita	Codemasters	↑	1.99	Mega
4	Phantom	Tynesoft	↑	6.95	Awesome
5	Spy v Spy	Tynesoft	★	6.95	Crisp

C64

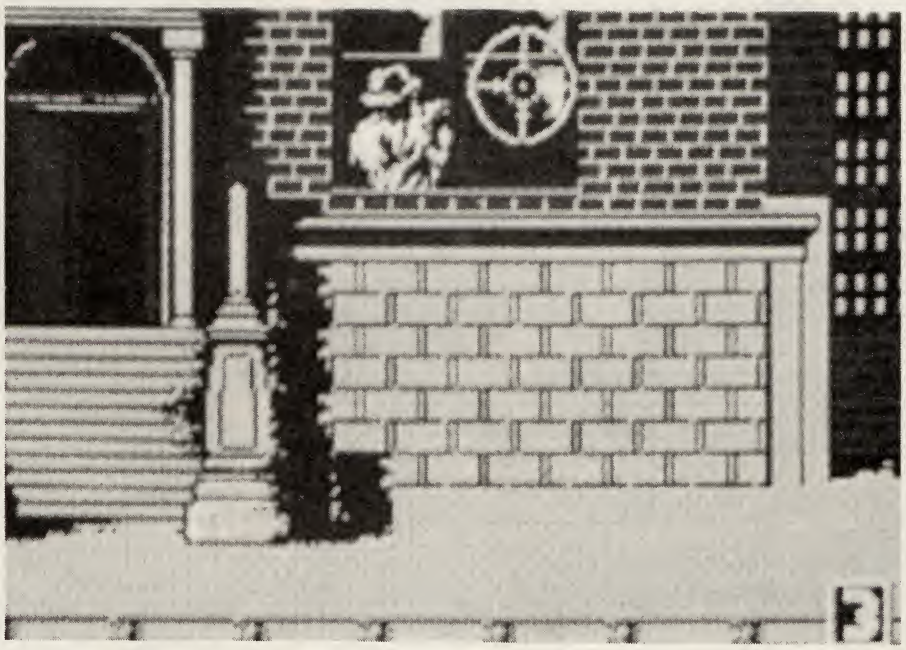
CRISP

Prohibition — Infogrames

Prohibition makes a change from Infogrames usual style of adventure mysteries, and is set in New York during the Prohibition. The criminal gangs that rule over the poorer areas have got so out of hand that the police can no longer keep them under control, and are prepared to pay good money to anyone who can clear up the streets. Being the money-loving mercenary that you are, you take up the challenge to rid the streets of these dirty slimeballs.

Prohibition is an obvious derivation of one of the favourite arcade games of last year. The game is viewed through the eyes of the player, looking on to the front of a row of buildings. Your gun sight starts in the middle of the screen, and is aimed with the joystick. Moving the sight to the edge of the screen causes the background to scroll accordingly. An arrow appears at the bottom of the screen to indicate the position of the next gangster, but it doesn't tell you how high on the building he is. When you find him you've got the time remaining of the five seconds on the clock to shoot him to bits. Your gun has a powerful kick which makes things harder. After a while the baddies hide behind hostages. Shoot one of these innocent civilians and you lose points. You get five seconds to shoot each gangster before they shoot you.

Although the idea is simple, I liked the arcade version because of its atmosphere creatd by realistic screams and gunshots, and detailed background. Unfortunately these are the areas in which I was slightly disappointed. Here the background is reasonably well drawn, but the sprites are somewhat lacking in size and detail. A simple tune plays in the game, with equally simple white noise gun shots. I also would have preferred a larger window on to the game.



I don't want to be too hard on the game, as it doesn't have any really bad points. I enjoyed playing Prohibition, but after a while it all seemed monotonous.

Definitely worth a look for fans of the arcade game, but I must admit to be a little disappointed at what has been achieved.

B.D.

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Sound: ★★
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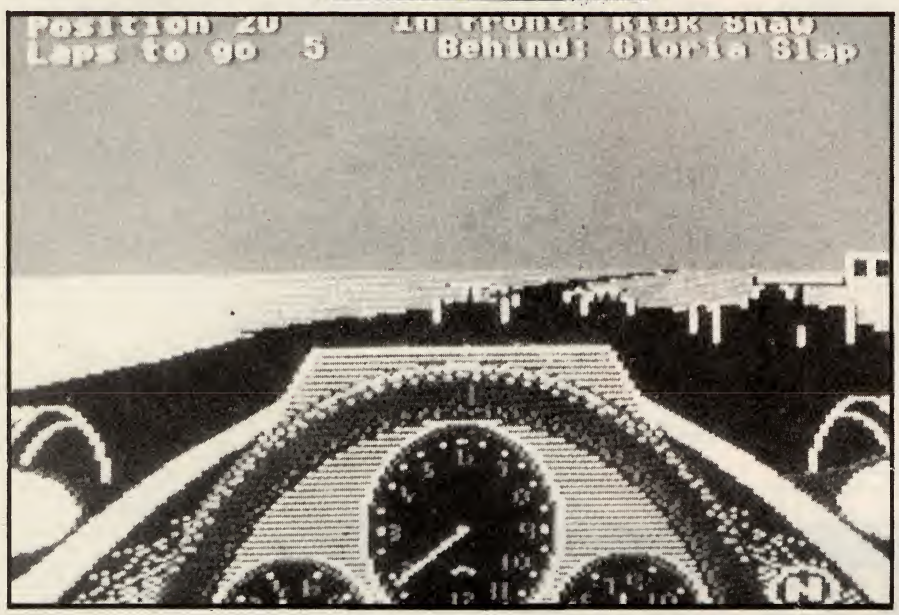
CCI Rating C64

CRISP

REVS



Revs Plus — Firebird

Last year, Revs was released on the 64 and received excellent reviews, mainly for its realism. About a year later, Firebird have released Revs Plus, said to be a year's worth of listening to gamers and improving on the original accordingly.

Revs Plus is a motor racing simulator viewed from the cockpit of your car. Before you race, you must first select two tracks from a choice of six. The selected tracks are then loaded from tape or disk. Next you choose which of the two you will race on. You then choose practice or competition and the spoiler settings. In practice you can just drive round the track with no other cars and get used to the controls. Selecting competition prompts novice, amateur, or professional depending on your skill, and the duration of the qualifying laps. After entering your name and spoiler settings, it's off to the track to try to earn yourself a decent position on the grid.

Unless you're first on the grid (very unlikely) you'll see the other cars in their places. Rev your engine and watch the lights change to green. If you're not quick enough on the start, you'll be left behind, but a good start can give you an opportunity to pass some of the slower cars, although you'll probably crash at the first bend. The effect of the track dipping and bending is fairly realistic, but apart from the odd sign, there isn't any scenery, no trees, scrolling horizon or anything, which makes it rather boring to look at.

The original Revs was very hard, and so is Revs Plus, but a 'computer assisted steering' feature has been included which makes cornering far easier for beginners. This can be turned on or off to allow normal control for more experienced drivers. Another feature of Revs Plus is a digital joystick option (something Revs didn't have), but can unfortunately only be used with a paddle, which is silly, as the joystick could have been used for steering.

Apart from the extra tracks, computer assisted steering, and joystick control, Revs Plus is little different from Revs. Revs Plus has obviously been well programmed, but isn't exciting or different enough to make it worth buying if you already have Revs. On the other hand if you don't own the original, and like the sound of Revs Plus, take a look you'll find it a challenging drive.

T.H.

Graphics: ★★
Sound: ★★
Playability: ★★★
Rating: CRISP
Price: £9.95 (c)
£14.95 (d)

C64

MEGA

Defender of the Crown — Mindscape/ Mirrorsoft

When CCI — or rather Amiga User — first looked at Defender of the Crown — it seems like years ago! but it was only November 1986, the Mindscape marvel caused such a sensation that, according to Commodore, crowds of people rushed out and bought Amigas just to be able to play it. Mindscape were said to have sold 20,000 copies on the first day they released it which would have been big even for a 64 game. At roughly $50 a time which comes to a million dollarsworth — it could be the largest computer game sale ever. Why were we — and later the rest of the world — so knocked out? Well, to start, the Amiga graphics were astonishing — and for many that was enough. Now, Defender of the Crown has taken the opposite to the usual route from 64 to Amiga and is now making its appearance in the 64 — thanks to the enterprise of Mindscape and their European distributors, Mirrorsoft. Has the reverse fashion journey been worthwhile? Is the 64 version of 'Defender' a game that will stand up in its own right for playability. In addition, do the graphics take comparison with its stunning Amiga predecessor? Let's take the last question first. The graphics capability of the 64 is, of course, nowhere near that of the Amiga but if you had never seen the Amiga version you would almost certainly be stunned by the 64 Defender. Whoever did the conversion has obviously set out and practically equalled the visual impact of the Amiga version. The graphics must qualify as the best of any 64 game this year.

'The Shining blades of Saxon Swords'

Now playability. Well, the story has not changed. Your king is dead and the throne unnoccupied. "Britain", we are told, "has entered a season of destruction, a winter of killing that can only end when the last brave Saxon Knight lies dead or the castles of the Norman are heaps of rubble emptied of the foul oppressors who enslaved your people. It is a time when foreign invaders shall learn truths administered by the shining blades of Saxon swords." Well, you'd better take that piece of history with a very large lump of salt. Saxon Knights? Shining blades? That picture of merrie England would make most historians roar hysterically and is really straight Errol Flynn Hollywood (very appropriate for a game in Mindscape's 'Cinemaware' series!) But it does give you the taste of this agreeably challenging strategy type game with some joystick-bashing elements like jousting.

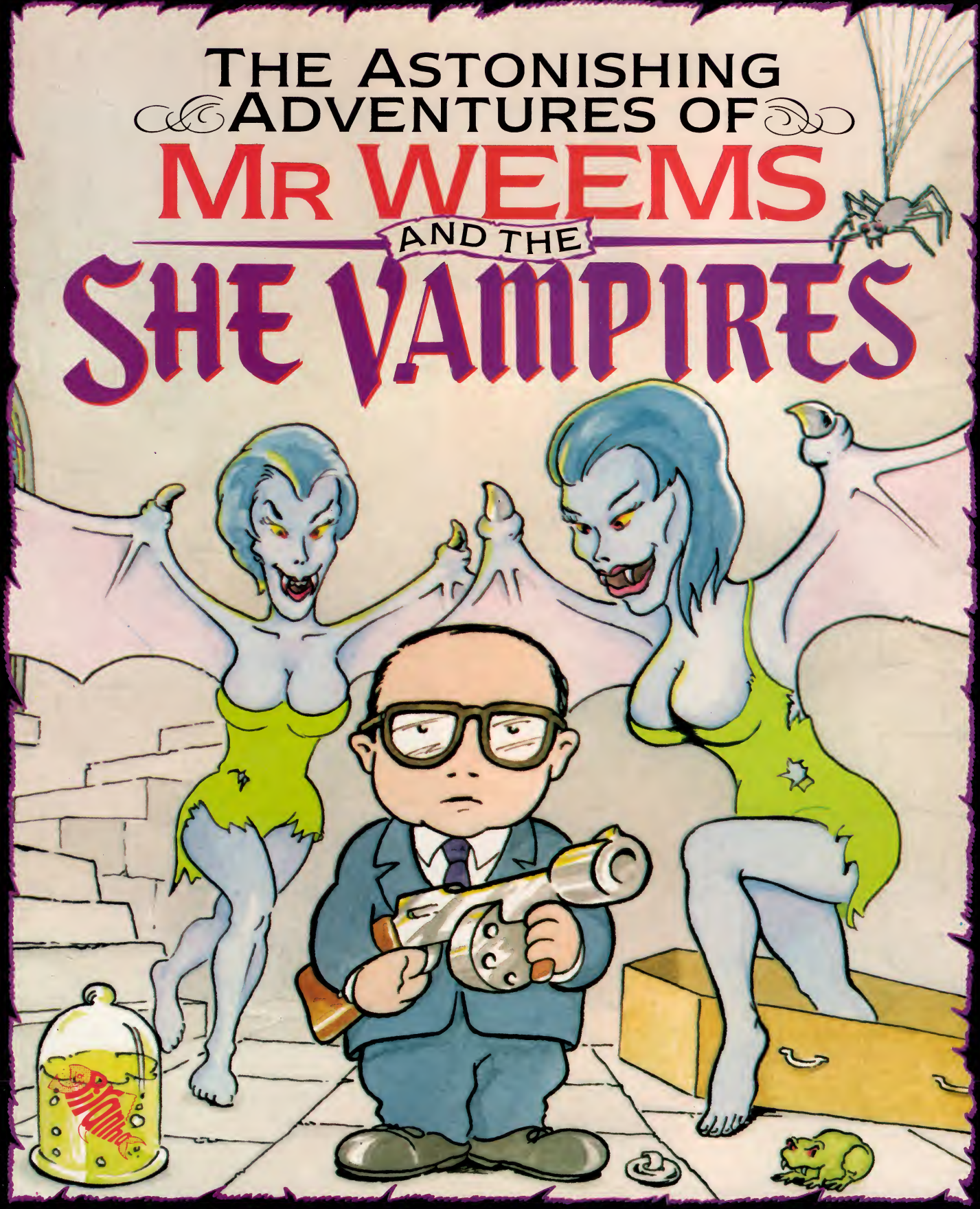
There are six lords trying for the throne — 3 Saxon and 3 Norman. A Saxon lord has to capture all three Norman castles to take the throne. You have to build your army devoting well-judged amounts of your treasure to conquest or defence. Knights dominate the field but you need stout men-at-arms and catapults to reduce the Norman castle walls. There is, as in all good stories, a princess. This one is both pretty and pretty emancipated for if you can rescue her she will, in a scene that's worth replaying several times, 'clad only in her shift' as they say in historical novels, show her gratitude in the most pleasurable fashion. I'd let your Dad see that bit. The poor old guy might begin to appreciate the joys of computer games.

Defender 64 is not a terrifically difficult game but it will give you quite a few hours of excellent gameplay. It's got all the Amiga version had in games terms and even some scenes we hadn't noticed before. Defender must be judged one of the very best games to come out on the 64 this year. Yet, it was very well worth converting. Very highly recommended.

Z.M.S.

Price: £14.95
Graphics: ★★★★★
Sound: ★★
Playability: ★★★★★
Rating: Mega

THE ASTONISHING ADVENTURES OF MR WEEMS AND THE SHE VAMPIRES



Mr Weems, the failed accountant, has forced his way into the Mansion of the She Vampires. Armed with rapid-fire garlic gun and smart-garlic pill, he must blaze his way through six lethal levels of the Mansion. Sharp-fanged bats, dim-witted, Frankenstein monsters, and thirsty She Vampires stand in his way. Weems has just one small problem. Staying alive!

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MEGAREVIEW

C64

AWESOME

R.A.D!

CALIFORNIA GAMES

Epyx have released some outstanding games in their time. Winter, Summer Games etc have set new standards for 64 computer owners to enjoy. Last month, CCI carried out an extensive review of Epyx' Street Sports Baseball — the latest production from the prolific stable. Baseball was an excellent game. The Epyx quality, style and addictiveness built in to it made it worthy of the Awesome rating it received.

When CCI heard that California Games was coming — it was eventually delivered personally by the gentle hands of the breathtaking US Gold/Epyx princess, Helen Browne, we decided to put two of our tougher reviewers, Tony Horgan and Courtney King, onto playing this challenging new games series competitively between them. When they finished we sat them down and recorded their impressions. Did it live up to the usual high Epyx standards? Did it match Baseball's Awesome rating? Had they been able to get the stars out of their eyes the Helen Browne had left there and look at the screen clearly enough to judge California Games by their usual hypercritical standards? Read on and find out!

TH: *Everyone here who has seen it is impressed but they all differ on which is their favourite events in the new California Games series, which would you say were your favourites Courtney?*

CK: *Well Tony surfing was definitely the best of the bunch and skateboarding comes a close second. But BMX is also pretty good because of its addictiveness. Frisbee and rollerskating come joint fourth and foot bag last, although I still find it a very enjoyable game.*

TH: *On the whole I agree with you, but I prefer the foot bag to the frisbee and rollerskating, but for the sake of argument let's say that your list is right, and we'll look at them in reverse order.*

CK: *OK then, what do you think of foot bag?*

TH: *At first I thought this was pretty boring, just keeping a ball in the air by kicking and heading it, but after a few goes I was surprised at how much I enjoyed it. The character is large and well animated, with a trendy hairstyle to match the mood of the game. Keeping the ball up for any length of time can be tricky at first, but you learn how to time your headers and kicks and can perform some of the more complicated tricks with practice.*

CK: *Yes, I agree with you so far and I particularly like the way that you can use different parts of your body to hit the bag by timing and positioning your player. The little touches the game has like when you can hit a seagull with the bag, or when someone throws the bag back onto the screen if you kick it off are especially fun. The game lacks some variation and begins to get just a little samey after a while.*

TH: *Yes, that's true, but I still find it enjoyable because you can either just try to keep the bag up, or attempt some of the flashy moves.*

Diving Catcher

TH: *How about the frisbee?*

CK: *I wouldn't have thought that frisbee throwing (or flying disk as they call it in the game) would have made a very good event, but to my amazement, I found that it was very good. It's easy to get into and when you catch it, it gives a feeling of achievement.*

TH: *Yes, and the control method is appropriate, and reminded me of Leaderboard. Once you've mastered the art of catching, you can try to be flash by making diving catches, or catching it above your head. The graphics are a bit below the overall standard, but the scrolling is smooth and the tension when it floats through the air and you wait for it to come down is terrific! Helen Browne from US Gold/Epyx says that when this was demoed in Europe it was the most popular game of the whole lot.*

CK: *Okay then, what do you think of the roller skating?*

TH: *I thought roller skating would come out well on a computer, and it has. The control method is logical, the way you thrust forward with each foot matches the joystick movement. Some realistic obstacles are on the promenade that you skate along, such as banana skin and ice creams, and there are some neat extra problems like sand on the road and an infuriating bouncing ball!*

CK: *The graphics are fairly well animated, but not as detailed as some of the other events, the backgrounds are also very bare, but are adequate I suppose. All in all I reckon that although the game is hard, you have a very strong urge to complete the course, but I really prefer the BMX section.*

Somersaults and Spins

TH: *That's right, so do I. It's not that different from roller skating, but the graphics are bigger and bolder with a well animated rider. I found this the hardest event of the lot perhaps because of the collision detection which seems a bit inaccurate. Apart from this, it's terrific fun jumping over the ramps and obstacles, and doing stunts like somersaults and spins. What did you think of it?*

CK: *Well, you've just about said it all really, it's got a long track that'll take a long time to complete, and it's as addictive as many biking games like Kikstart, and better than most.*

MEGAREVIEW

Nick fell off his board

TH: *If I were a skateboard freak, I would describe the next game, skateboarding, as 'like totally tubular rad! A dude on an awesomely gnarly skate machine, man!'*

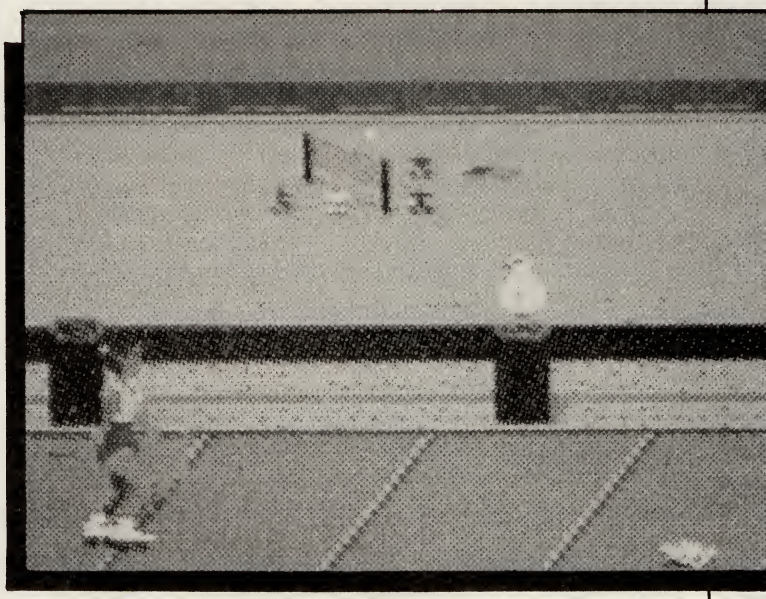
CK: *Yeah, I like totally dig this description, man. It's like incredibly cool, you know what I mean? When I pulled off my first hand-plant, like the whole office just erupted in one big WOW! Nick, resident skate freak fell off his board when he saw the graphics.*

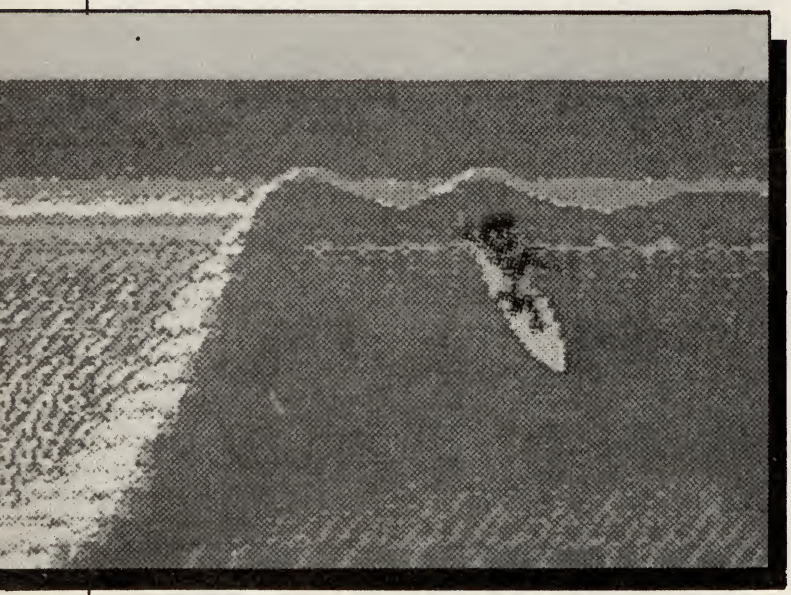
TH: *OK, that's enough of that skate jive, what about the game?*

CK: *The idea of it is to perform a variety of tricks on a half pipe within a time limit. All the moves look pretty spectacular, and I'm very impressed with the animation.*

TH: *When you get it together with a good trick, your score is shown with flashing lights and stars around it, just like an arcade game. Don't forget to watch the board after you fall off, or you might get it where it really hurts!*

This is a highly professional and detailed game, but even more enjoyable in my view is the surfing.





Feeling you're actually there

CK: *This is the best game of the lot. You start by lying down on your board and paddling on to the wave. Once you're up on your board, the game gets going properly. You have a minute and a half in which you have to perform as many moves as possible before getting wiped out by the breaking wave which comes at you from the left. You can also wipe out by going over the lip of the wave or going so low that you lose the wave altogether.*

TH: *I just love this! It really gives you a feeling of being out there on the surf. The graphics of your surfer are excellent — he looks just like a stocky little Hawaian. The moves you can do aren't too far fetched. They're exciting to perform and watch, like the tube ride and jumping off the crest of the wave, before catching the surf again.*

CK: *I especially agree with what you said about feeling like you're actually there as the man twists and turns. When the scores are shown, a picture of a group of young surf dudes comes up and you're given your score. The graphics on this are excellent and are especially good since it's on a 64. The people even have their own characteristics — some of them mark harshly, and others are generous, especially the blond in the blue T-shirt.*

CK & TH:

We both agree that California Games has to be the best release this year so far. Some of the individual games are almost worth the asking price on their own. Miss California Games and you might as well go back to wearing flares! So zip down to your nearest shop by car, taxi, plane, BMX bike or skateboard. Clutch your begged, borrowed or saved up cash in your hot little hand and get the laid back shop assistant to move and sell you this awesome addiction former immediately!

Price: £9.99 (c) £14.99 (d)
Graphics: ★★★★★
Sound: ★★★
Playability: ★★★★★
Rating: Awesome

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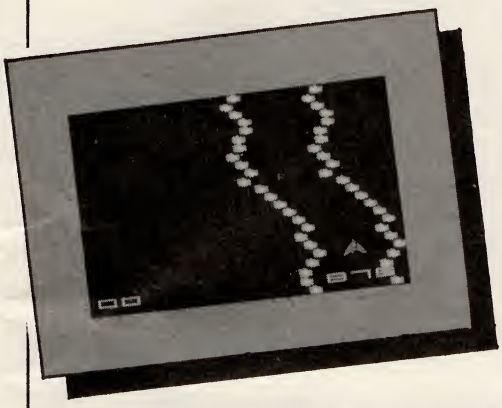
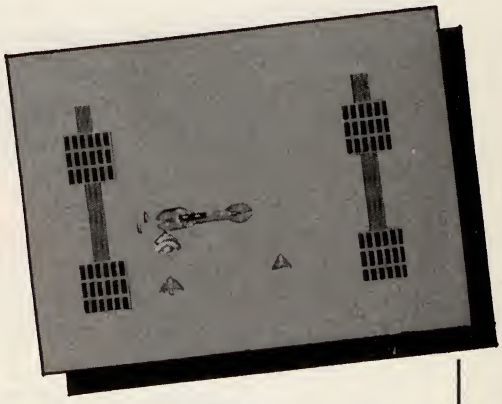
And still they come . . . More budget game are pouring out. There seems a neverending stream. We believe that there must be more than two new budget game alone being released every day! And they go on selling long after their release date — unlike the full price software. Some are re-issues from the full price past, some brand sparkling new . . . LazerForce, a new one, from Codemasters, would be top class at any time and possibly at any price — the prolific Gavin Raeburn certainly strikes hard and often! other cheapos are not much more than shelf fillers but if you're 12, bored, it's raining and you've only got £2 . . . Well, they're better than spending the cash on glue to sniff, that's for sure . . .



LAZER FORCE



Code Masters

Gavin Raeburn is really making a name for himself at the moment. Just in this issue are reviews of two of his other games (The Enforcer and Gun Runner) and another, Thunderbolt was reviewed last month. They have all received good reviews.

Lazer Force, his latest is a vertically scrolling shoot 'em up, played through 32 levels. The game is split into four sectors. Sector 1 is in the usual format, with your ship travelling up a scrolling tunnel, with aliens coming from above and below that need to be shot. When enough aliens have been shot, you advanced to Sector 2.

This is very similar to the old arcade game Centipede. A number of randomly placed mushrooms fill the screen, with a centipede-like creature snaking down the screen. To add to this is a variety of aliens that speeds down the screen at you.

Sector 3 is a docking stage, as in Moon Cresta, where your ship drifts down the screen towards the mothership. Using your left/right controls, and thruster, you must carefully guide your ship to dock without crashing. This is made harder by your ship's delayed reactions.

Next is Sector 4, the corridor. The idea here is simply to fly as far as possible along the corridor in the time limit. Hitting the side ends the stage, but no loss of life.

Once all four sectors have been completed, play continues from Sector one, with a different tunnel, and slight variations on the other sectors.

As with Gavin Raeburn's other games, the graphics aren't its hottest point, but they are adequate. Sound effects and music break no new ground,but are also acceptable.

Lazer Force couldn't be described as original, it is certainly derivative, incorporating elements of Centipede, Moon Cresta and countless other shoot 'em ups, but is still very good fun, and at the price shouldn't be missed by any shoot 'em up fan who isn't already bogged under with the hundreds of others around at the moment. Gavin Raeburn's talent — and Codemasters' ability to find programmers of the highest class make Lazer Force outstanding value. Highly recommended.

T.H.

Price: £1.99 (cass)
Graphics: ★★★
Sound: ★★★
Playability: ★★★★
Rating: Mega

THE ENFORCER — Power House

From Gavin Raeburn the author of The Equalizer, Thunderbolt, and Gun Runner, comes The Enforcer. You play a short-armed robot, and are compelled to accept the importance of the Durge Caverns (according to the Power Mouse).

The Enforcer is a Ghosts and Goblins variant in which you must collect all of the parcels from each of the sixteen levels. Each level is approximately four screens wide, by two screens high and consists of ladders, platforms, pits and monsters. These monsters need to be shot before they drain your energy.

The game is hard and would soon become frustrating if it were not for the feature that allows you to start on any completed level. The graphics are adequate, with smooth scrolling and an attempt at a sprite similar to that of Antiriad, which hasn't worked as well. A typically average tune plays on the title screen with fair effects. The Enforcer is a well written game that's fun to play, and well suited to a budget range.

Value Rating: 7

RUN FOR GOLD — Alternative Software

This is certainly an original type of running game. Instead of viewing from the side, and waggling the joystick, Run For Gold is viewed more like Pole Position from behind the runner in 3D. Most of the screen is taken up by the 3D action, with two bars on the side that represent speed and energy.

The first option for the player is whether he wants to have to steer the runner around the track, or have the computer steering. You then type in the runners name, and choose to run over 400m, 800m, or 1500m. Then it's off to the race. The idea of Run For Gold is to pace your runner, getting him to run as fast as possible without losing all his energy.

The single coloured sprites are large and well drawn, but with few frames of animation. Run For Gold is reasonably good fun to play, and not at all bad for the price. Recommended.

Value Rating: 7

MERMAID MADNESS — Firebird

Myrtle the mermaid was never much of a hit with the boys. At the age of 110, she was beginning to give up hope, until she met Careless Colin. Being rather thick, Colin tried to escape Myrtle by jumping off the pier into the sea. In his rush to get away, Colin got stuck in a shipwreck on the sea bed, with hardly any oxygen. It's up to you to, as Myrtle, to rescue your true love before it's too late.

Mermade Madness is a flip-screen arcade adventure. As you swim about you must dodge sharks, fish and other inhabitants of the sea that will drain your energy. Extra energy can be found in bottles of stout. To rescue Colin, different objects you find must be used and moved around, in order to get through the blockage that's trapping him.

The graphics vary from simple, boring sprites, to detailed interesting backgrounds. A pleasant 'Everyone's a fruit and nut case' tune on the title screen, but I don't think a great deal of the main game music.

Mermaid Madness was nothing special when it was first released at full price, and couldn't really sell for more than £1.99 now. Not a bad game, but not brilliant either.

Value Rating: 7

DR JACKLE AND MR WIDE —Bulldog

Jackle and Wide is a type of arcade adventure in which you have foolishly drunk a potion that turns you from a mild gentle soul, into a violent maniac. The only way to reverse this effect is to find the antidote which is hidden in Dr Piqued's hideout in converted sewers under Hyde Park.

The game starts in the park. Here there are objects that must be used in a particular order to progress further into the game. An exit near the start leads to the sewers where nasties must be avoided.

Graphics and sound are of the simplest form, as is the game which gets very boring very quickly. Dr Jackle and Mr Wide isn't worth a second look.

Value Rating: 2

EDDIE KIDD — Ricochet

I know Eddie Kidd's a bit of a rugged character, but was he ever this blocky? Martech seemed to think so back in '84, and it's now been re-released on the Ricochet label.

Your simple objective is to jump as many cars on your motorbike as you can. Eddie Kidd is viewed from the side, with a big bike and rider sprite that is almost half the height of the screen. Unfortunately, the size is paid for in lack of resolution giving the game that authentic ancient Legoland look. As you accelerate through the gears, the very repetitive background (a wall with some buildings behind) scrolls from right to left. There is no speedo, so you must judge your speed by which gear you're in, and the changing tone of the engine. Once in the air you must keep your bike from flipping over backwards or forwards by leaning back and forth accordingly. If you land successfully, you go through the same procedure, but with an extra car. If you crash, you're told 'I hope you like hospital food!' This joke only made me laugh because it's so old.

Eddie Kidd's a good laugh, and all you could expect for £1.99.

Value Rating: 7

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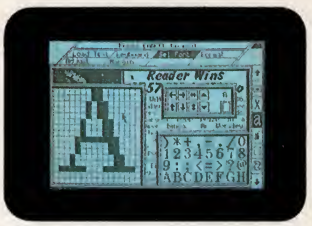

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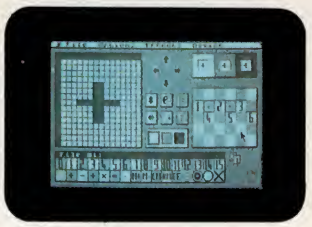

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C64

CRISP

Game Over — Ocean

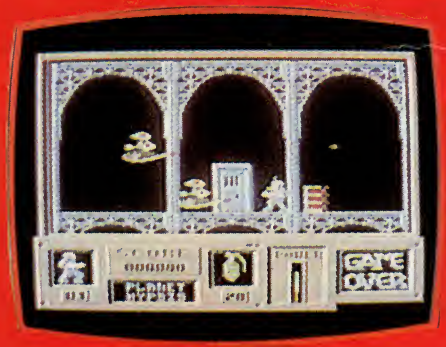
Game over? But I've only just started! Oh, I see, the game's called Game Over. Fancy having a game called Game Over, that doesn't say game over when you die.

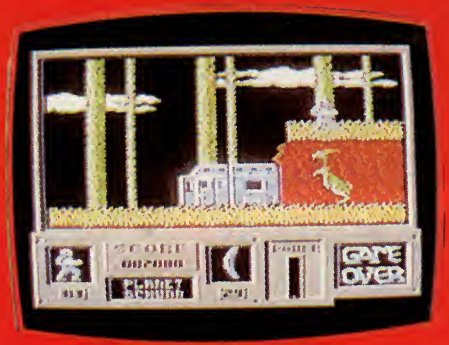
As usual, there's a story to justify the game. This time instead of rescuing the girl, you're trying to catch her. She is the wicked dictator for Gremla, and you are attempting to bring down her empire.

The game is set in a far away universe, and you play the part of Arkos. You start your quest on the planet Hypsis. This world consists of twenty screens, starting in the corridors of a prison. As soon as the game starts, guardian robots fly in and attack you. These are fairly easy to kill with a hand grenade. As well as grenades, you are armed with a gun. A short tap of the button fires the gun, with a longer press throwing a grenade. The object of the first stage is to travel to the right through all the screens to a spaceship which will transport you to the second world.

As you walk along, you come across barrels that can be shot a number of times to reveal extra weapons, energy, a forcefield, or a mine that kills you. At certain points in the game, you come across lifts that must be jumped onto to cross cravasses. About half way through the level, the scenery changes to the great outdoors, with a mountain range in the background. Here you encounter the green monsters and a giant monster called Orko. At the end of the first level are three giant robots that must be shot twenty times each.

Once past the first planet, you are transported to the planted Sckunn. In this world your grenades are exchanged for a giant laser that wipes everything in its path. The amount of shots, as with the grenades, is limited in number, with extra shots available at points in the game.





The start of this planet bears a strong resemblance to the graveyard in Ghosts and Goblins. But out of nowhere come a bunch of green kangaroo-like animals bouncing towards you. Touch these and you'll loose energy. A little further on you enter the palace. Here you meet some strange flying creatures called liesers — friesers. The palace is on a number of different levels which are connected by lifts. I didn't like the way you have to wait so long before a life comes. I would have preferred a system like Impossible Mission, in which the player controls the lift. But this does work.

At the end of the palace is a giant guardian who must be shot 75 times.

Graphically, Game Over varies from average in places, to very good in others, such as the big monster who is large and well drawn and exciting to fight.

The in-game sound effects are extra-ordinary, but some very strange music by Martin Galway reminded me of his piece in Arkanoid, with some sounds that I can only guess are sampled. It certainly makes a change from his usual style and is very well worth hearing.

Game Over has a lot of attraction. I enjoyed playing it, but couldn't help thinking it was let down somewhat by its lack of speed and joystick response. Not a totally brilliant game, but certainly programmed by Dinamic, a Spanish team with a high reputation it has a special quality of its own, and worthy of your money.

T.H.

Graphics: ★★★★
Sound: ★★★★
Playability: ★★★
Price: £9.95 (c)
£14.95 (d)
Rating: CRISP

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SWOOPER
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DIABLO
This game is very simple really. You slide pieces of track in front of a moving ball, and as it passes over a section of track, the track disappears. You just have to keep the ball rolling unti all the track is gone. Graphics are simple but effective, sound is nice and the mouse interface easy to use. It's also so maddeningly addictive that it could earn you a one way ticket to the funny farm.
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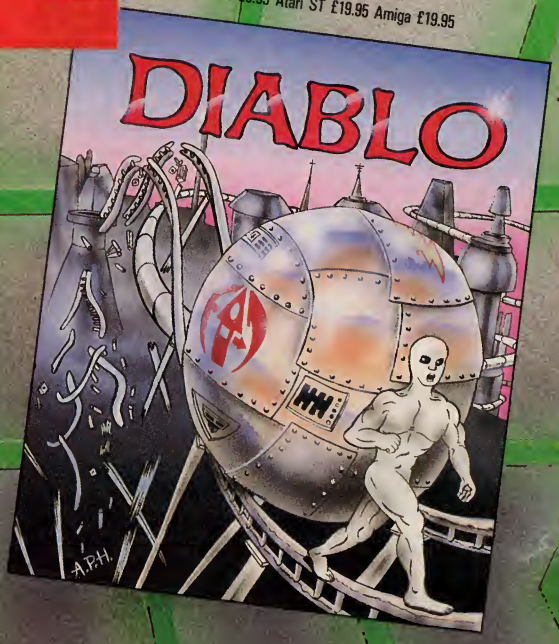

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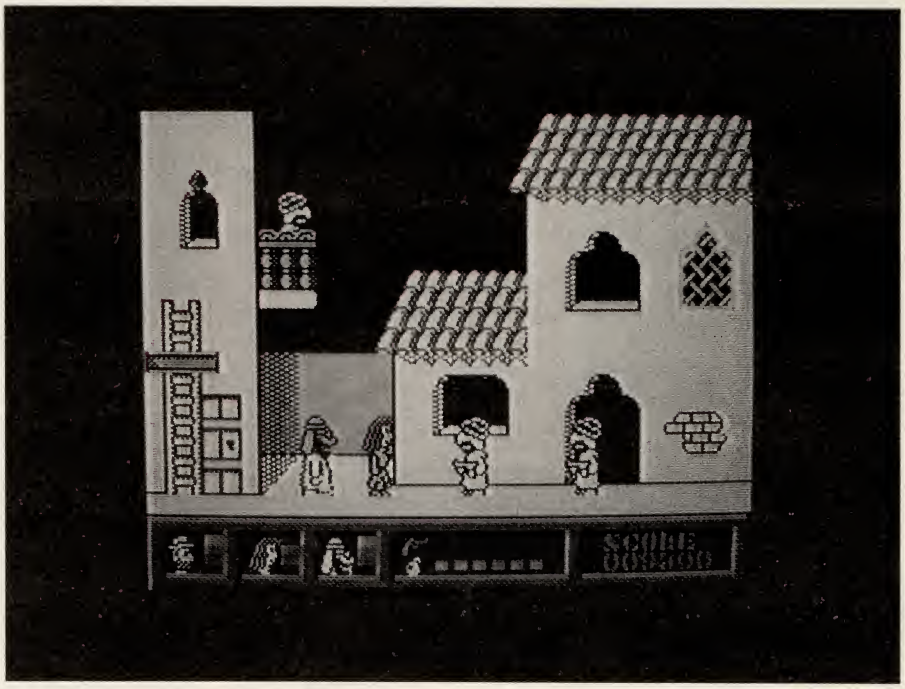

Mystery Of The Nile — Firebird

I think Firebird, who have one of the most successful budget labels around, must be in a bit of a dilemma. Some of their games seem to fall midway between budget and full price quality. Kinetik and Mystery of the Nile are two good examples of games which would have made excellent budget games, but not quite up to full price standard.

Mystery of the Nile is set, unsurprisingly, in Egypt. Instead of just controlling one character as in most games, the player takes control of one of three characters, with the other two milling about under computer control. Your task is to recover an antique jewel that has been stolen by a nasty Egyptian who is keeping it in the military complex at Jarga.

The game starts with you controlling Janet. She's standing on a balcony with an armed Egyptian patrolling below. Two balconies further on you can see some hand grenades. Timing your jumps from one balcony to another, you collect the grenades which have to be thrown at the Egyptian. A few more soldiers need to be killed before you exit to the next screen. A couple of screens later you meet up with your friend Al-Hasan. Until he finds his sword-like umbrella he's more of a hindrance than a help. You soon find Nevada, the last member of the team who can dispose of the enemy with his gun.

To progress from screen to screen, a certain number of soldiers need to be killed. As you only control one character at a time, and the computer controlled characters tend to be rather stupid, a lot of care is needed to make sure you don't shoot, stab or bomb your friends. Each screen needs a carefully planned order in which to kill the baddies without killing the others on your side.

Every time you complete ten screens, you are given a password to allow each subsequent game to start from that position. Each of the characters has four lives, and the game is over when anyone loses them all.

Mystery of the Nile has obviously been converted from a Spectrum version. Although there are only very minor enhancements, the graphics are very agreeable. The sprites are well animated and full of character. The backgrounds are colourful, varied and interesting. There's a simple but suitable tune on the title screen, and a few simple sound effects in the game.

Mystery of the Nile is fun to play, but can be very frustrating at times. Once into the swing of it, it can provide some lengthy entertaining sessions, but I feel it's a little overpriced.

B.V.

Price: £7.95 (c) £12.95 (d)
Graphics: ★★★★
Sound: ★★
Playability: ★★★★
Rating: Crisp

PRE-BASIC

Killer Ring — Reaktor

Killer Ring and Challenge of the Gobots (reviewed elsewhere in this issue) just go to show that Tony Crowther's not all he's cracked up to be. This game must be the simplest shoot 'em up since Space Invaders! It's no more than Galaxians with a line that scrolls down the screen to act as a barrier. How many shoot 'em ups can you name that don't have a background? Not many I should think.

The game goes like this: rows of aliens bob up and down on the screen and occasionally swoop down towards you. You control a spaceship and must shoot the aliens. If in hard mode, a hole must be shot in the scrolling line before you shoot the aliens. Doesn't sound too exciting does it? I wonder why?

Do yourself a favour and forget about this pathetically simple game.

T.H.

Price: £4.99
Graphics: ★
Sound: ★★
Playability: ★
Rating: Pre-Basic

Super Felix is "Fee-line". That means pay cash and he won't

Buy British T — or Else!

And I suppose you think it's Lady Di the world loves! Just show how wrong *you* can be! There *is* one Lady travelling these days who is regarded as far, far more important than the next Queen of England. Who is the fabulous super, super awesome star of the big loving wonderful software world? Whisper it and the crowds will form immediately — it is Lady Jane (Business\Woman\of\Every Year) Cavanagh, Export Marketing Superma of Telecomsoft. (You know Fire Rainbird Goldand-Silver was Thrustamistake BT). When Lady Jane ('It must be Tuesday because I'm in Las Vegas') Cavangh pilots her private Concorde onto the airstrip at Tokyo Airport, the whole of the Japanese Ministry of Trade and Technology turns out on the red carpet (they throw it way afterwards) to greet her. They shout traditional compliments like 'Nintendo' (which means 'Your complexion is like plum blossom') and 'Sega' ('To play games with you is like climbing from Mount Fuji to heaven') and bow their heads so low that she can walk over them as a mark of respect.

Before her mile long limousine has reached the Commodore Geisha Hilton, in which all 500 rooms are permanently reserved for her, she has ordered Japan to buy Mad Nurse, I Ball and Gerry the Germ and other BT intellectual triumphs in such quantities that the whole Japanese of payments surplus (some £50 Billion, Billion) is immediately transferred to Telecomsoft and Sir Richard Bielbey (Knighted for services to the Mastertronic Codemaster world).

It's like this everywhere Lady Jane goes. Why do you think BT does not need to sell another game in the UK? Because by a twitch of her Vidal Sassoon trimmed brows (Sassoon recently flew to Indonesia just to rearrange a Cavanagh eyelash), Lady Jane exports a trillion Amiga Stargliders to the Antarctic and a zillion Guilds of Thieves to Mozambique. Why do you think the Japanese bought up all these shares in BT and Rolls Royce. Because of Lady Jane. She works (Joke! Ha Ha! probably owns!) for one and *all* her planes use RR engines, of course! I believe there is a move afoot to get Lady Jane to take up running the economy of the USA (they're $200 billion in the red) but I don't think they could offer her enough money. She's also very popular in Paris. I hear that the last time she was there they gave her a full size photo copy of the Eiffel Tower. And guess who's going to the Kremlin next year 'to talk about computer games and nuclear disarmament?' As I believe, Lady Di said recently 'It makes one feel frightfully, frightfully proud to be in the same dinky little world as too divine gels like Janey-Waney don'tcha know? It certainly, does, doesn't it?

There is no doubt about it, English language computer rags are dullsville personified compared to those of other companies. This was taken from an ad in an Argentine mag — no, not the Falklands/Malvins 64k Gazette). What does it mean, I wonder? Technoseducción? The mind boggles indeed.

A CCI T shirt for the best answer, under plain cover and in Spanish, of course, to "The I love General Galtieri The Isle of Wight belongs to Paraguay" Com etition C/o Supero Felixdo. Viva La Bamba!

Sip your wine...unwind...watch the fireplace reflections in the mirrors ...the night is yours. ♥

As most readers will know, Bill Donald, CCI's technical wiz is at present in the US advising President Reagan and the US software industry on how to fit the Amiga into Star Wars — the space programme not the film. He is receiving about a Billion (what else would Bill get?) dollars a month and is using as a home a peculiar institute called Sybaris. The brochure tells us every Sybaris Suite is a luxurious cottage, tucked away among the trees. Every cottage a tranquil, pleasure-filled haven — no windows, no phones.

A whirlpool, soothing, warm and stimulating. All features of the Sybaris Suite with the added luxury of a seven-foot whirlpool bath and custom designed Sybaris Climate Room.

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Wow, anybody — and I do mean body wishing to join our US correspondent should write to Bill Donald c/o Sybaris 1805 Pennsylvania Ave, Chicago D.C.

Howling Shame!

This is the tail — sorry — tale of one of these nasty animals called — I hate to use the word! — dog. Yuk! In Super Felix! Well, more of a wolf, really. He is about the size of a large bear and prefers a diet of human thumbs, I'm told. How do I know this? Because a certain André JayGee has infiltrated the staff of CCI apparently by threatening all and sundry with setting this vicious Nelsonio Marina — no he's not a boat that's his name — on to anyone who will not contribute to his "Spanish Fund" as he calls it. This "fund" is to go towards paying for a million acre hacienda in Alicante, Spain that the said André the dangerous dog lover — or Amante del Perro Peligroso, as los Espanoles call him, has acquired with his bullfighting poet mother Doña Jacquelina Moko de Pao de Motores Generales y Bedfordio. The Rancho Salvaje, as it is called, is to give space to a race of man-eating dogs this mysterious and bloodthirsty family intend to breed and then use them as a means of dominating the world and the Isle of Wight. Fear ▶

La Tecnoseducción.

mention you... (unless somebody else pays me more!)

is today the strongest emotion at CCI Towers when this André JayGee saunters into the Ad Dept. So much so that even the thoroughly violent Princess Krotoa, North London's most frightening vigilante — Gremlin's forthcoming Deathwish 27 is to be about her, we hear — even she has been terrorised into a quite dramatic step that I will reveal to you in the next issue. If you speak to this André JayGee, he simply curls his lip and snarls "Call me Jack Russell or I'll bite and give you hydrophobia!" When I asked Our Sacred Editor why this dangerous person had been employed, he muttered something about "A mistake in the distant past" and the word "Baskerville . . ." fell from his trembling lips. Then he hurried away gnawing at an old dog biscuit and hid in the kennel — sorry — cupboard under the stairs. Ah, where are the carefree days of Max the Ad, whom I hear is now playing bagpipes in a Broadway style version of the Edinburgh tattoo — which is also to be seen on the inside of the thigh of glamourous star of stage screen and wrestling ring, Gillion Tompkins. Dogs — and their lovers — I hate 'em! Viva los gatos!

MIN FEELS PASSIONATELY ABOUT CCI

LONG JOHN VENNING TRIED TO DROWN OUR WHOLE DESIGN DEPARTMENT IN SCARBOROUGH HARBOUR — HE'LL GET HIS — DON'T YOU WORRY!

BULLY BROWN IN HIS KNIGHTMARE NICARAGUAN CONTRA OUTFIT ←

Bully for him, too

You of course recognised the shadowy figure sitting behind Colonel Oliver North during his recent televised 'Honesty is the Won't Policy' quiz show. Yes, it was none other than that fighter for anti-red causes Major Brown. Interestingly the Americans I hear, call him "Bully" Brown. He was there to ensure that the lies Oliver North had told in the past would not be confused with any he was about to tell in the future. No easy task indeed. Major Bully Brown — whose cover as adman for CCI is obviously fake as anyone can see from the amount of advertising in CCI these days — was also there to make sure that the world "Commodore" was never mentioned. The CIA did not want North to blow the story that Amstrads disguised as Pets had been shipped to Iran so that the Ayatollah's forces would not be able to work out where they were going or even who they were fighting. Colonel North and Max the Ad, Bully's erstwhile Boss got three tons of Beluga caviar in exchange for the hardware. The real Pets were sent under Bully's supervision to the Contras in Nicaragua. They though they were TV's and are still sitting in the jungle waiting for 'I Love Lucy' to start. North threatened to blow the whole sordid story unless President Reagan watched him on TV. Bully left, via Tel Aviv, to point out to Oliver with a large Luger the foolishness of spouting his mouth. When Bully gently gave this advice, Colonel North ex-Vietnam toughie hero fainted dead away. The proof of the success of Brown's mission is that not once did you hear North mention the word Commodore. Did you? In recognition, I hear the Bully Brown has been promoted to (acting) Lieutenant Colonel. Ah yes, in CCI we have friends in high places. And please do not stand beneath, they may crush you when they are pushed off.

Super Felix Yuk!

I thought you would all like a change and become thoroughly disguisted. So I am letting you see some information about a game that reached us delicate souls here at CCI Towers.

X (that isn't what it's called but it won't get publicity from Super Felix, No Sir!) has been kicked out of the Institute of Infectology, without obtaining his 'stinkploma'. If he wants to get on in the world, he'll have to prove himself as a virulent virus, and has already found himself an innocent victim! Your aim is to guide X on his voyage around the human body — causing as much damage as possible on the way, and ultimately causing a heart attack! Your task in the Lungs, is the collection of the oxygen bottles, whilst watching out for the red & white blood cells. Lung failure will transport you to the Kidneys, where you have to pick up the little kidney beans — but you'll have to be quick as they soon disappear. Once you have enough beans you will be allowed into the loo, where you progress up to the next level — and into the Bladder! X will be in a rowing boat which he is in the Bladder, but must be careful not to sink — floating on the toilet roll will help. If the boat sinks, he will be returned to the Lungs. When you reach the Stomach, you need to get hold of the acid bottle, and use the acid to dissolve the Asprin guarding the exit. You have to keep your eye out for the tape worms, healthy food and gas pockets. Deflect the junk food and you'll get through faster! In the Pancreas you must infect the medical supplies — by 'nutting' them! You complete the game when you get to the Heart, by deflecting an arrow off a TV set, and into the heart — thereby causing a heart attack. X will be the 'Virulent Virus of the Year' — if he can get that far without being killed! Yuk! Yuk! Yuk!

Can you believe any company could stoop so low to issue a game so vomit worthy? I won't tell you their name. I don't want you phoning Sir George Jeffeson to complain.

Golden Browne

And who is this Helen Browne that everyone is talking about? Whenever this Californian beauty queen, business genius and expert on Mexican culture — who pretends she was born in Birmingham of all places! — enters CCI the whole Tower stops, crowds form outside and her every word is broadcast in the BBC World Service, with commentary on her every gesture. Just because she has been given the Island of Minorca by a wealthy admirer because he admired her grace and style in surfing and because she told him she wanted somewhere quiet to practice Roller Skating and BMX, both of which she is world champion. Just because she can skateboard down the M1 to CCI in 47 minutes and can hackie sack and frisbee at the same time for weeks on end, she doesn't impress S. Felix. After all she practices these and other strange Californian games all day and night and Epyx pays her a million dollars a month and a trip back to Hollywood every month. Californian Games indeed! If she comes here again wearing that teeny weeny polka dot bikini and tanned all over — and I do mean *all* over — in this delightfully wet English summer — I'll . . . I'll . . . well I'll probably emigrate either to Solihull or Malibu Beach. She claims both are equally exciting. I understand she is looking for a partner to surf across the Pacific. Anyone interested should contact her c/o U.S. Gold, Sunset Boulevard, Birmingham.

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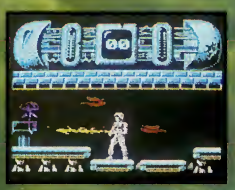
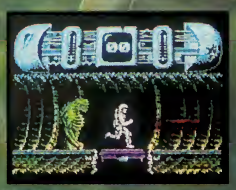
Screen shot from Amstrad version.





Screen shots from Spectrum version.

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PREVIEW

Yogi Bear — Piranha

After making a big impression on the software market about a year ago, Piranha are set to make a come back, starting with Yogi Bear.

Now, some nasty man has gone and kidnapped poor old Boo-boo. As soon as Yogi realises this, he sets off to find the little tyke. The game is set in Yogi's home, Jellystone Park, with Yogi and Boo-boo at opposite ends. Yogi is a very courageous old bear, and takes a light hearted view of the situation and wears a big smile which never leaves his face.

It's a long walk right across the park to where Boo-boo is being held, and the distance between you and him is shown on the Boo-boo-ometer. Along the way you are pursued by Ranger Jones, campers, mooses, eagles and bees. Fortunately they're not very intelligent, and can be lured into pits and rivers.

All this excitement burns up that energy, so picnic baskets need to be pinched from campers to stop Yogi passing out. The whole game is played against a time limit with some sharp graphics and bright colour, smooth scrolling and some neat programming tricks. If you fail to reach Boo-boo before winter, Yogi gives up and goes into hibernation!

If you're smarter than the average bear (sorry, but I just had to put that in), you'll get down to the PCW show where you can get a sneak preview before its scheduled launch in mid October. From what we saw, it will be very well worth takin a look at — and playing!

B.V.

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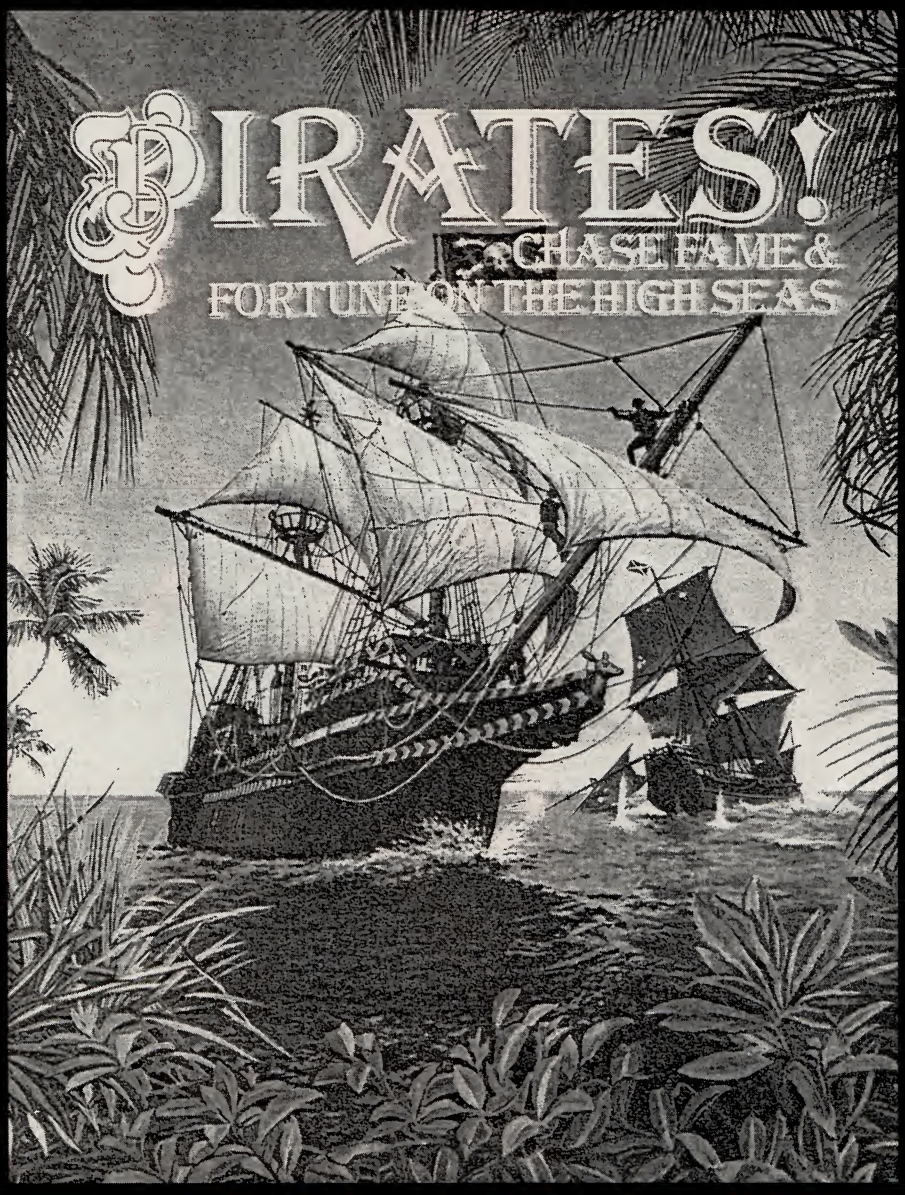
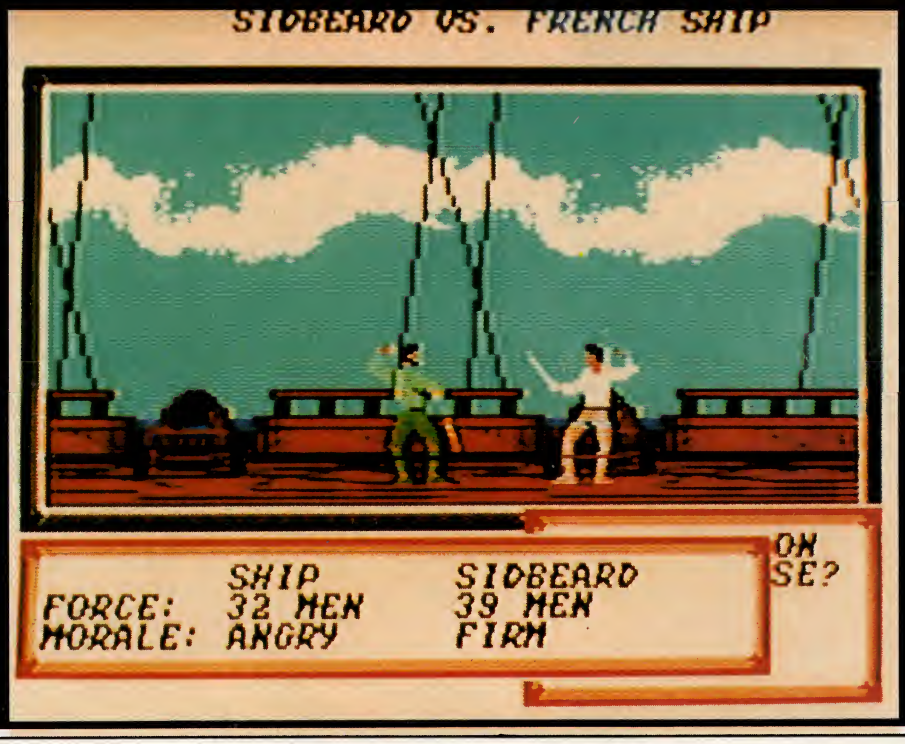


IS PIRATES ALL IT'S CRACKED UP TO BE OR IS TWO WEEKS ON THE BARBARY COAST JUST A BUSMAN'S HOLIDAY? — ANDY MOSS OUR INTREPID ADVENTURER INVESTIGATES . . .

From The Journal Of Captain Sidney

I first spied it soon after dawn had broke, we were just finishing off charting our days course and had begun to rig up the main sails for a speedy days sailing when I decided to go up into the crows nest for a spot of eagle eye. I saw the three mast heads first, a long way off to be sure, but mast heads they were and coming on a course right in front of us. My memory of sea going vessels served me well for I could see that she was a merchantman, which meant that a juicy prize was in the offing. Sensing that a bit of action was at last around the corner, my crew began to grow in excitement, which by the time the merchantman had sailed into complete view had become roars of delight. The boys were well and truly pumped up, as well they might as usually ships of this were a rare catch, with their holds able to store 100 tons and their cannon numbering 24.

Pulling my Barque around until she was side on to the enemy, I gave the order to fire our cannon, and at once a mighty battle ensued, this merchantman was not going to give up without a fight. Loading and reloading, my boys went at it like men possessed and we managed to do a lot of damage without so much as a torn sail on our ship. Sensing the time was right, we threw over the grapples, and poured across, yelling and screaming like insane beasts.



Jumping down from my Captain's bridge position, I selected my trusty cutlass and jumped over into the fray. Through the smoke and flying debris, I saw the enemy Captain advancing toward me, panic in his eyes but brave just the same. our swordfight would decide whether the battle would be won or lost as a loss of the Captain would be too much for either side to contemplate.

We fought, I with my cutlass slashing and stabbing like a good'n, he with his rapier trying to do me away with great sweeps of his blade. Finally, he wearied and fell to his knees defeated, at that joyous moment, the ship was ours! Oh joy or bliss the merchantman was a prize indeed. Laden with many goods to be traded back at the next port, and cannon a plenty to turn over to our ship. Yes this beauty would not be plundered and sunk, no sir, she would be given a prize crew and sailed back to also be sold. A great day we had that day I can tell you, and one I have cherished since my retirement as a Pirate. You can't go on forever

fighting and plundering, there comes a time when you divide up your loot, and chuck it all in for a peaceful life, it's just picking that time that's important. I did, I was lucky, plenty of my mates have sea graves, they didn't know when to stop.

This account is just one of the many delights that playing Microprose' PIRATES can present to you. It is a wonderful idea that has been implemented superbly, in the style that I have come to expect from the Sid Meir programming team. This team has been responsible not only for the highly acclaimed GUNSHIP but a variety of other combat simulations such as VIETNAM and SILENT SERVICE.

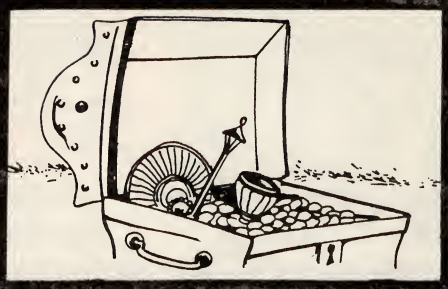
You get the option of starting as a novice Pirate Captain and working your way up the ranks to notoriety, where if you are lucky men will flock to join you on your voyages due to your reputation, or desert you in droves if you start to fail. Or you can start as a famous buccaneer and recreate the treasure laden ambushes of Sir Francis Drake or the plunderings of Henry Morgan. Like these men you can discuss politics with provincial Governors, sneak into towns for clandestine smuggling with shady merchants, rescue helpless waifs or even find a wife.

As in all good simulations, the historical settings must be not only accurate but be able to send the player into a sense of believing that he or she is indeed acting out the real thing, as far as possible. Pirates does this standing on its head. The documentation is first class, (if you can call an 88 page manual first class!) and the map of the Spanish Main provided in the box is not only a lesson in geography but essential in navigating in the game.

The game is vast, with so many options to try out, it will take you months to play through. There is

trading to be done and obviously a fair amount of Pirating but there are also quests to be undertaken and buried treasure to dig for.

The actual fighting sequences are very well implemented, with just you and the enemy captain slugging it out. You get a choice of swords to use (eacgh has its own way of use) and a variety of strokes to attempt.



As you fight, you will see what condition your men are in, if you are winning they will be fired up and the enemy numbers will start to diminish, but if you are taking a lot of punishment, they will panic and you could lose them all.

You can also attempt to take a town by out running the towns guns and trying a landing as close to its fort as possible. From then on you fight a land battle similar to the traditional war game style of overhead tactical view. If you win a town, you are free to plunder its riches, but beware as next time it might not be very friendly towards you!

I think the graphics are very good indeed, smooth well drawn characters and ships, that show just what the 64 can do given the right coding.

If you liked Gunship, make no mistake buckle your swash and go get PIRATES you will love it, you'll find more to get on the Barbary Coast than just a sun tan. Yo ho ho and a bottle of rum, sixten men on a . . . pirates chest!

A.M.

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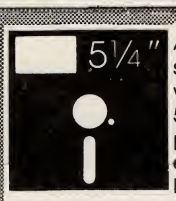

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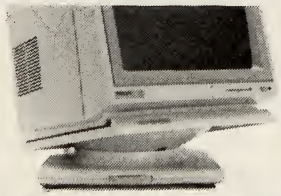

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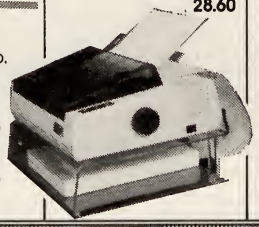

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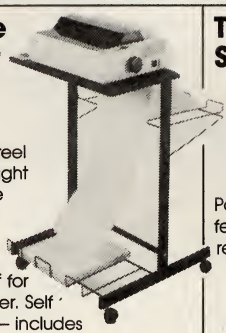

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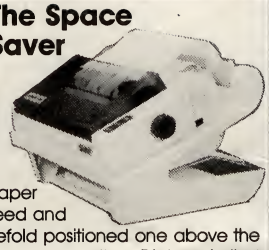

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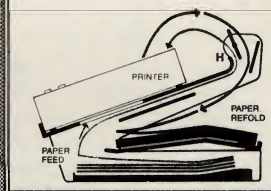

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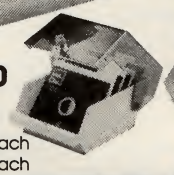

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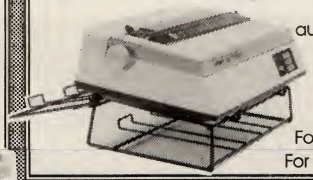

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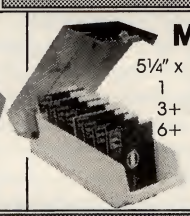

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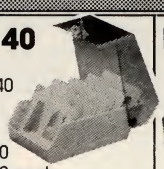

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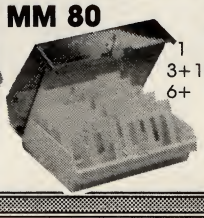

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C64

CRISP

Laurel and Hardy

Mr Laurel and Mr Hardy are mad with each other! That is the start of the game. You see Stan was just standing there, by a corner in a small town, when he saw Ollie advancing towards him. In one hand was a map of the town, in the other there was a bag with the words "Percys Perfect Pies" on it. Ollie walked up to Stan, and guess what? He removed a large, creamy, tasty looking pie from his bag and — yes — pushed it into Stan's face. Stan must get his revenge — you've got to get it for him!

To get your revenge you must find the pie shop, get the largest, thickest custard pies you can bag and chuck them into Ollies' face. This means it's time to get searching for the pie shop, and THIS in turn, entails a very pretty, amusing and good arcade aventure. Now, before you turn the page, read the rest of the review because this game is a very successful attempt to capture all the fun and frolics of the films of Laurel and Hardy.

You start off by a map shop and here you can pick up a map, which will help you find your way around the small town. As you collect your map and start walking around exploring the place, you'll notice that the computer controlled player knows exactly where to go and what to do. I found it extremely annoying when he got to the pie shop, zoomed back towards me on a bike he'd found, and landed a pie straight in my face.

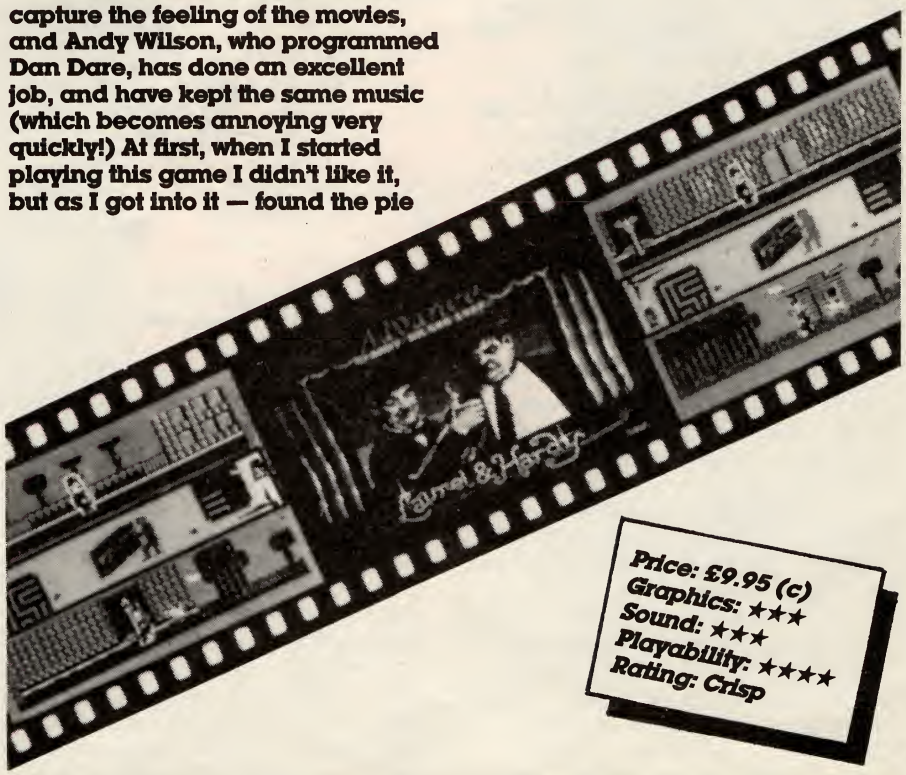
But I found I had a few rewards as well, such as the time I rescued a dog from the dog-catchers' van, and the other time when I nicked a bottle of vino from the bar — and got drunk!

There is so much to this game it's hard to describe — you can do so many tricky things and there are many little touches that show how much care has gone into the game. For example, when I got drunk the screen started shaking and I went wandering around, unable to control my directions, and another time when I dropped a broken bottle, Stan rode over it, and lost his bike. I also tried to pick up a broken bottle and a little card came up saying "Only a food would pick up a broken bottle" and then when I continued trying to pick it up its said, "Q.E.D."

Advance have tried hard to capture the feeling of the movies, and Andy Wilson, who programmed Dan Dare, has done an excellent job, and have kept the same music (which becomes annoying very quickly!) At first, when I started playing this game I didn't like it, but as I got into it — found the pie shop, and rescued the dog, which started following me around, I found it grew on me and I am certainly addicted to it.

This game isn't all super fast action and blasting, but if you are looking for a game with a long lasting appeal, and have a couple of weeks to spare you might as well give this game a whirl! Now let me go and get Ollie into that fine mess again!

C.K.



Price: £9.95 (c)
Graphics: ★★★
Sound: ★★★
Playability: ★★★★
Rating: Crisp

C16 PLUS/4

CRISP

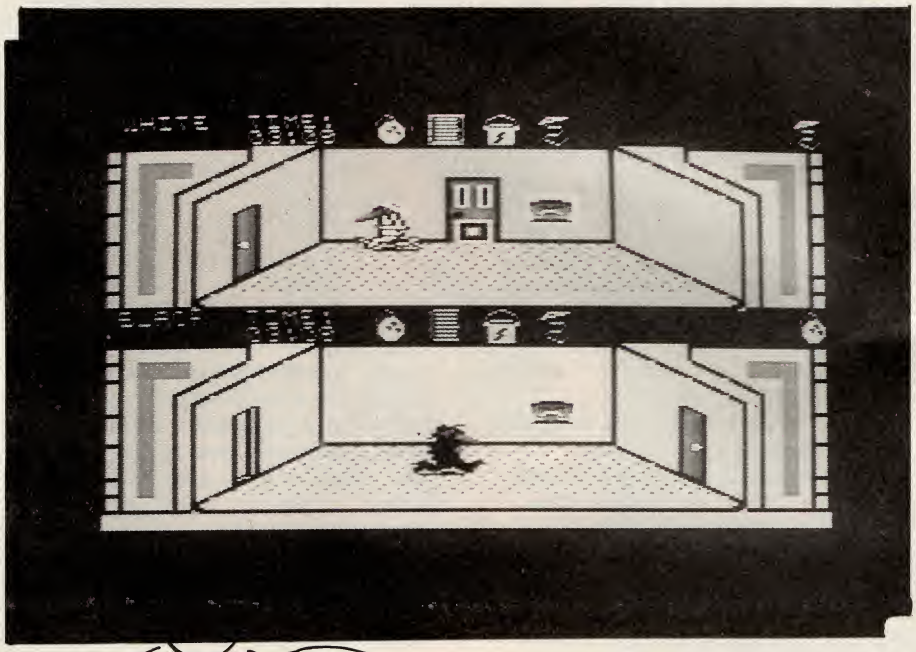
SPY VS SPY

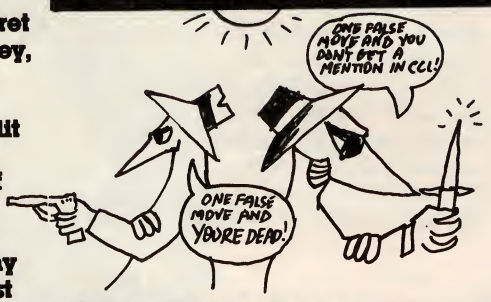
Spy Vs Spy — Tynesoft

Spy Vs Spy was first released way back in around '84, and is taken from the cult comic book, MAD, which is still going pretty well today. It features the hilarious exploits of Black Spy and White Spy who are always trying to get the better of each other in a humorous world of espionage and traps. A Joke and Dagge assassin waits around every corner, and the unwary will fall prey to the tricks of the opponent. So sharpen your knife, put on your raincoat and dark glasses, and keep your wits about you as you get ready to play this game.

The instructions are long, with loads of sub-headings and rules so I'll take you through tem one by one. You're first need, is to know your objective. This is to escape from the embassy, with a Top Secret briefcase, containing money, a key, some secret plans and your passport. Simulvision is how you play the game with the screen split into 2; the top half for White Spy (player one), and the bottom half for Black Spy (player two, or computer controlled player).

You must move around the many rooms of the embassy looking first for your briefcase, and then putting the things into it. This involves manipulating bombs, and other traps, which can be set for the other spy to keep him out of your way. You have a choice of four traps to set, these are: Bomb — which you can place anywhere except by a door; Spring — whch can also be placed anywhere except by a door; Water bucket — which can only be placed by a door and; Gun with a string — which is the same as above. To set these traps you must access the Trapulator. You do this by pressing the fire button. Once in the Trapulator you must place the cursor at the top of the screen on one of the traps. Once you've done that you release the fire button and the trap you have chosen is now held in your hands.





With all these traps around you have to be very careful of walking through any doors and so must keep a careful eye on your opponent. If you go into the same room as your enemy you can beat him with a club. You can batter the other spy until his strength is nil and he dies; he will return to his start position after a while but will have any of the equipment he had.

I have several reservations about this game though; firstly it has several glitches in the graphics, where it seems as if you are walking on air and don't have any legs. Some of the things are also unclear. Another annoying feature is that you sometimes enter the Trapulator when you are trying to examine an object. So when you then try to examine the object you get blown up, or electrocuted by your own devices. This detracts a lot from the game, and makes what could easily have been an awesome or mega game just a good one.

But don't think that these comments should stop you getting the game because it is the only one of its type and as such deserves to do well. The two player mode takes the game into real action arcade type and is really what this game was meant for.

Price £6.95
Graphics: ★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

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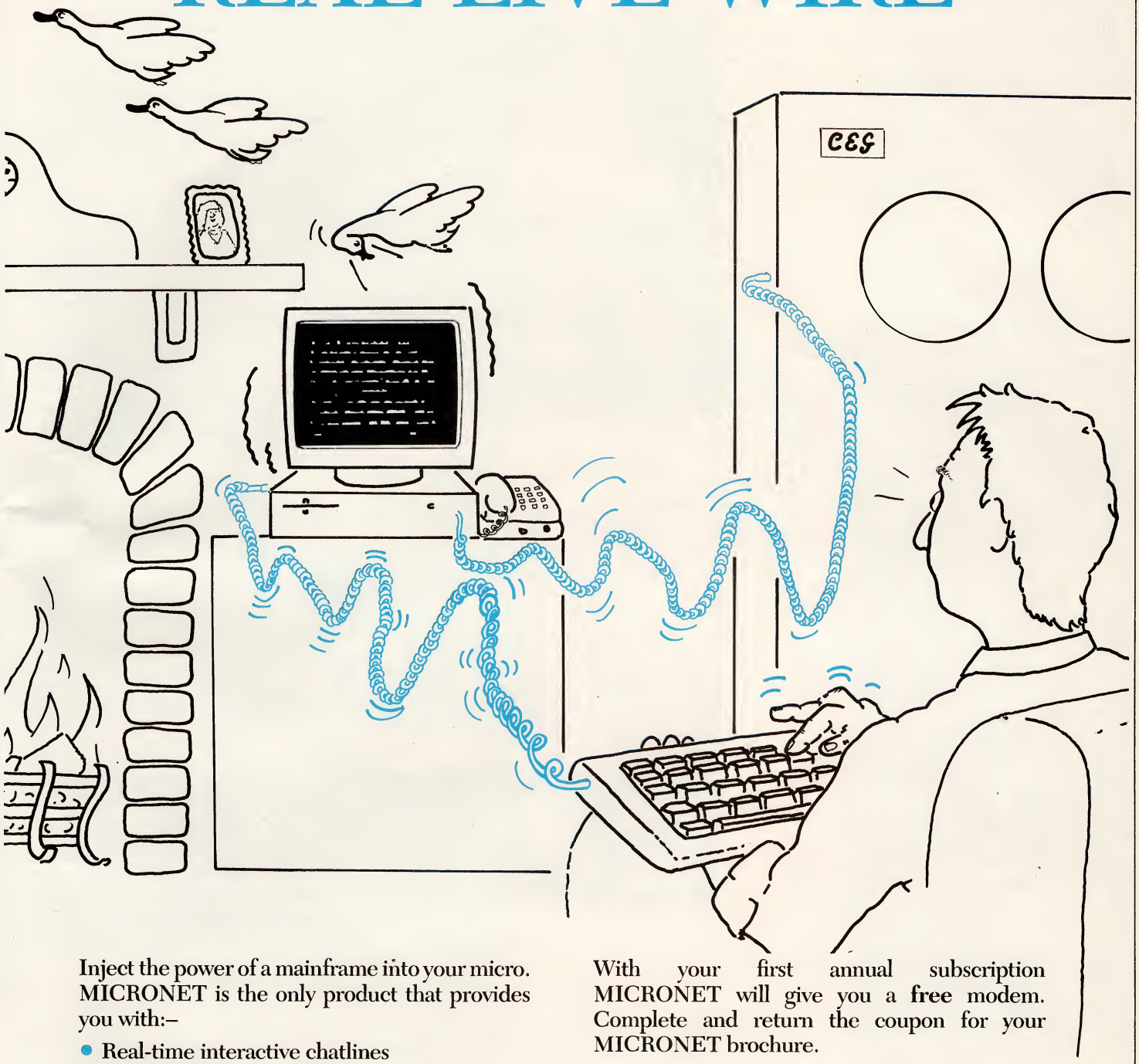

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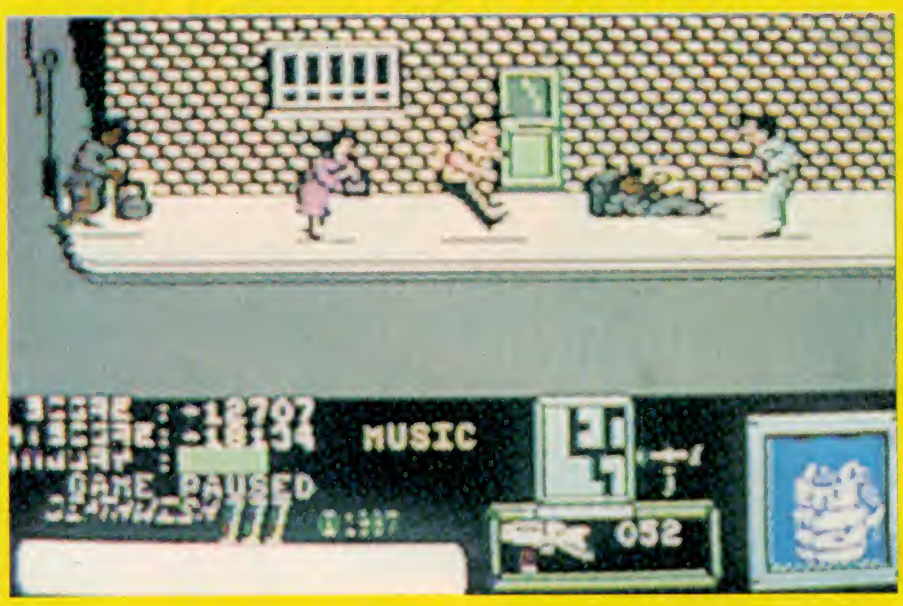
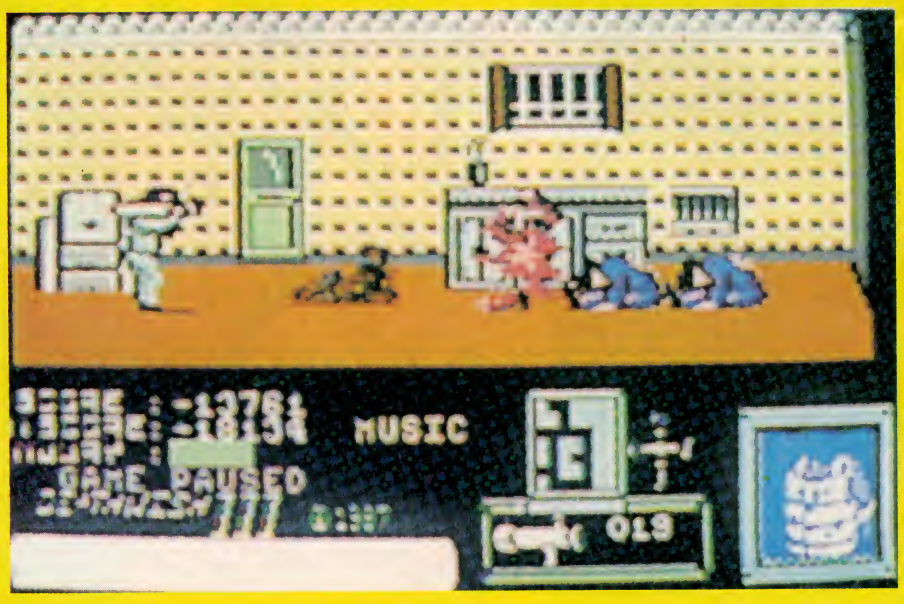
Deathwish III — Gremlin





Yummy! What more could a tense, depressed, over-worked gamester ask for than Deathwish III to let out all those every day frustrations on?

Deathwish III has you in Charles ('Make my night, punkgang') Bronson's shoes, playing the role of Paul Kersey, who has an obsession with death. On receiving a distress call from a friend in New York, you take it upon your self to clean up the streets and put an end to the raging gang warfare.

You start out on your seemingly impossible task armed with a rocket launcher. No sooner have you arrived on the streets of New York, you are set upon by a bunch of toughies, although when compared to you with your rocket launcher, they don't seem so tough!

The action is portrayed from a side view of the street. The screen flips as you run off the edge, or cross the road. A map shows your position in the city, and marks any weapons and gang leaders. This is a good idea, but tends to confuse matters occasionally.

Starting with your rocket launcher, you have to pick out the punks and creeps, and blast them to a mushy pulp. And I do mean mushy! The fall in *soft* heaps! Also on the streets are police who do their best to keep the violence under control, innocent grannies, and tarts who strut by, giving you a provocative flash of thigh! The police are on your side to start with, but if you kill too many by mistake, they'll turn against you. Kill a grannie and you lose points. So the streets don't get over-crowded, white uniformed medics are on hand to drag away the corpses.

As your ammunition runs out, you use less powerful weapons such as pump-action shot gun, and 475 Wildey Magnum. More weapons can be found in the houses. When you enter a house, the game continues much as normal, but your target is one of the gang leaders found sitting behind his desk. More punks can be killed from inside houses, looking out of the window.

Deathwish III has rather plain backgrounds, but some excellent sprites, which have some very nice frames of animation, even if they're a bit limited. It also has some good icon-style indicators and a screen map to help you know where you are.

There's a choice of a good Ben Daglish soundtrack, or some realistic sound effects.

This has a similar appeal to Nemesis the Warlock. Slaughtering loads of people is great fun, but as with Nemesis, there's little else to the game, and I feel the enjoyment may wear off before long.

While the challenge it offers is by its nature somewhat limited — Deathwish III has a very sharp look about it — sparkling vivid colours and lively characters and some great touches, and will give a great deal of enjoyment.

T.H.

Price: £9.99 (c) £14.99 (d)
Graphics: ★★★★
Sound: ★★★★
Playability: ★★★★
Rating: Crisp

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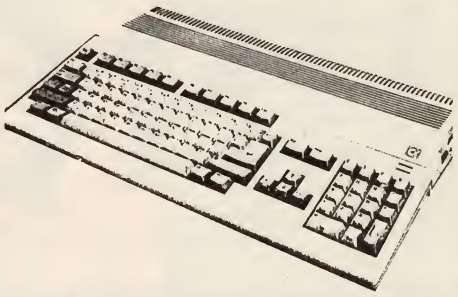
AMIGA USES IN VIDEO APPLICATIONS



The AUG have received many comments concerning the use of the 'whole screen' from either within their own programs, or in commercial ones. This is because the Amiga is an ideal graphics station for use on television or for video production and editing, due to its ability to merge an incoming video signal with its own picture by the use of a device known as a 'Genlock'.

However, most commercial software so far has been written in America, for various reasons including the fact that Commodore in America launched the Amiga nearly a year earlier than in Europe, and because of this there is a border of 56 lines across the bottom of the screen that cannot be used. To understand why, we need to delve slightly into the difference between the American TV network, and that of the UK and most parts of Europe. The Americans have adopted as a standard a scanning method called NTSC (Never Twice Same Colour) which uses 200 lines vertically scanning, whereas the UK and most of Europe use a method known as P.A.L. which uses 256 vertical lines. Therefore, those people writing software in America cannot see the bottom of the screen on software written for the European market, and those of us in Europe cannot use the bottom of our screens when using software written for the American market.

Some software houses have now started modifying their software and have produced or are producing software that will either detect which scan method is being used, or are marketing two different versions of their software. Having done this though, there is still a border around the edge of the screen, which is known as the 'overscan' area, (just as there is on the Commodore 64, 128, VIC 20, PET, and all other home micros.) This can still cause problems when using an Amiga for video applications. When you want to put titles on a video production, you need to scroll from the very top or very bottom of the video picture to get it to look professional (take a look at some of the credits rolling around the screen that you see everyday on television). While the Amiga hardware is perfectly capable of using this border (we have some examples in our Public Domain software library!) it has never been used in a commercial piece of software that we have seen to date, and makes the Amiga less useful in video applications.

Writing your own software for use in video applications maybe the only alternative to make use of the full screen. If your main programming language is Basic, then there are problems due to the fact that Amiga Basic was written in America and therefore only makes use of 200 lines.

We at the AUG have a Public Domain program that allows you to modify Amiga Basic to allow access to the full 256 lines. To make use of the overscan border, it is necessary to use the ROM Kernal routines, which, although possible from Amiga Basic, is often easier from other programming languages, such as 'C', 'Modula 2', 'Forth', 'Pascal' or even 68000 assembler if necessary.

However, we understand that companies, such as Electronic Arts are modifying their animation and titling packages to accommodate the European market, using the overscan facility.

Once you have the correct piece of software, the next problem is getting your work onto videotape, which requires a composite video signal. Whether you have a composite video output from your Amiga depends largely on which Amiga model you have, i.e. A1000/500/2000, and how old the machine is.

The early A1000's allowed for black and white composite video output which was not true PAL. This is because the circuit board was a modified NTSC version. Later A1000's were shipped with a colour composite video output which, although still not true PAL, was sufficient to get a colour image onto videotape. All A500's have a monochrome PAL output and a modulator is required to get a true colour composite video output.

The A2000 does not have a composite video output at all and so a modulator or Genlock is required, the Genlock having the advantage that you can merge two video signals, but is rather expensive for the home user.

Home recording onto Video, although not broadcast quality, can be easily achieved with the Amiga and appropriate software packages as outlined above.

You may find that extra memory is required when using animation packages and you should take this into account when setting up your "Home Recording Studio."

Putting titles onto your screen and being able to scroll them across, up, down or whatever is always a question we are being asked when the subject of home videoing crops up.

There are now several titling packages on the market for the Amiga and we can expect to see many more due to the powerful capabilities of the Amiga and its graphic and animation facilities.

With these packages, simple, smooth scrolling text can be achieved with the text being available in a wide range of different font styles and sizes, with various types of shadowing. Of course you can create custom palettes for your titles taken from the range of 4096 colours available. Some spectacular effects can be achieved using these colours and the different 'transistions' (the way the text is displayed on screen). All this goes together to make your titles look professional. For those that visited our stand at the recent Commodore Show, you may have noticed a free-rolling video demo running on the back of the stand and some of the techniques described above were used.

We know that many of the new small scale satellite T.V. stations that are being set up at the moment, are using the Amiga and these titling programs to save the hundreds of thousands of pounds normally spent by the major TV companies for complex titling machines.

We hope that has given you an insight into the world of various video applications and answered some of the questions that you have asked.

In the next issue we will cover some other points that have been raised by our members and hopefully answer your questions in the process.

If you wish to join, or would like further information about the (UK) A.U.G., then either call, write, or E-Mail us on the following:

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PROWRITE

$129

Peter Lee, a journalist whose experience also includes graphical activities such as designing newspapers, found both his talents engaged when he tackled this brand-new DTP package

Desktop publishing is proving to be one of the great growth areas in business computing.

It allows the presentation of information to be tailored to the user's needs with the minimum of fuss, at a fraction the cost of using an outside printing contractor, and with often striking results.

In fact DTP, as it's called, has captured the imagination of computer users who have been restricted in the past by the limitations of standard word-processors.

But with the arrival of New Horizons ProWrite, the missing link between DTP and true word-processing has been developed; it is a hybrid which combines all that's best in both fields and manages to add an elegance and simplicity of use that hides a powerful, professional utility.

The program is supplied on one disk, and our test version contained a well-written manual with step-by-step guides and 3 pages of additional information, including modifications to the software, now at version 1.1.

It needs Kickstart 1.2, and an Amiga with a minimum 512K memory.

The disk was easily backed up — credit to New Horizons Software for a policy of allowing users to safeguard their investments by not protecting the disk, and contained two versions of the program.

I must admit that when I first read the manual my heart sank to find ProWrite uses the Amiga's interlace mode — the jittery one to we embittered 1081 monitor users; but a scan of the additional information revealed that due to customer feedback (I can just guess the reaction of people trying to work on a screen which flickers like a silent movie...) they have created another version of ProWrite which works in medium resolution mode.

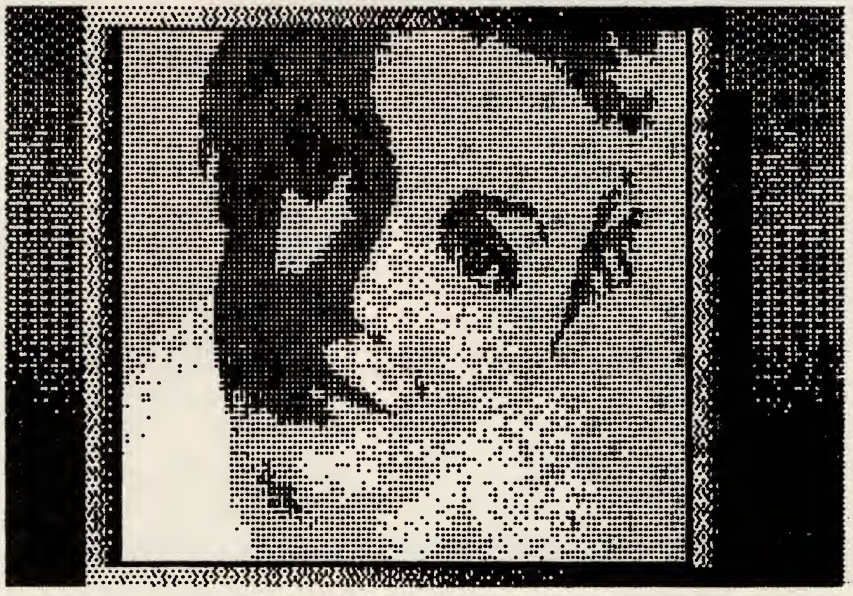
That's the good news — the trade off is that no longer do you benefit from WYSIWYG (another buzzword — what you see is what you get) because horizontal resolution is now halved in med-res, so your text is displayed twice as high, and so are your graphics.

MARILYN - portrait of a star ...

This picture was digitised using the Amiga DigiView software and enhanced from within Deluxe Paint II.

It was then loaded as a full screen into ProWrite.

****



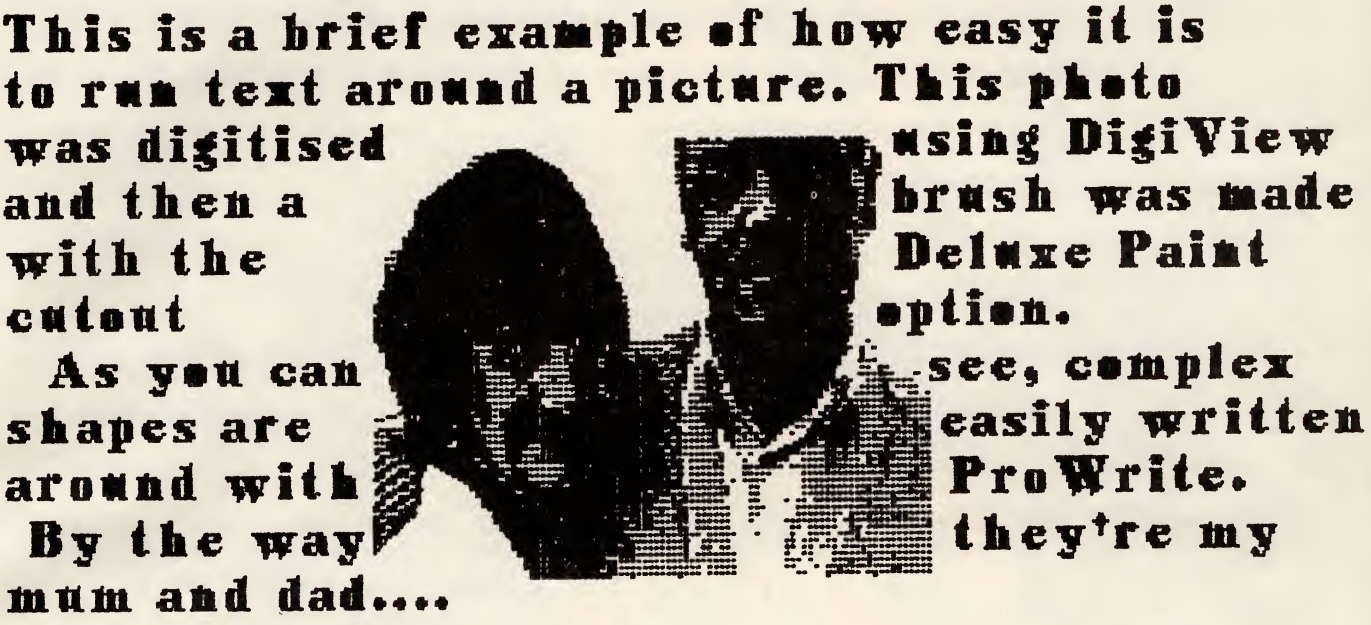
This text is being written around the picture using ProWrite's word-processing capabilities.

This doesn't affect the printout whatsoever — the finished article comes off the printer exactly the same, whichever screen resolution you have — and to be honest I didn't find it inconvenient at all; in fact I was rather pleased to be able to read my on-screen text from a comfortable distance.

The program comes with a mixed bag of fonts — which I quickly found inadequate for anything but standard letters; but adding your own fonts is easily achieved provided you have a selection, and I mixed Zuma fonts with Earthbound on the same disk and encountered no difficulties. And I found

It is also possible to stagger text around artwork by the program's ability to allow you to type over the background colour of an illustration, which adds greatly to the professional feel of the completed document.

Graphic dexterity aside, ProWrite is also a hard-working full-function word-



And once you get used to this quirk, it doesn't make the slightest difference to your lay-out. Users of long-persistence monitors (the new Amiga 2080 is one), or owners of the cheap but invaluable 'jitter-rid' screen, are promised improved legibility in interlace mode.

And in any event, users without these aids to have the option of dimming the colours which the manual claimed would help slightly, but which I took, squintingly, with a very large pinch of salt...

Using interlace mode also eats into memory because of its display overheads, so all in all I was happy to stick with Med-res.

There are a number of ways of entering ProWrite: For example by clicking the program icon from Workbench, by clicking an already saved document icon, or from CLI by typing 'ProWrite filename'.

Once up and running, the program presents you with a white window — the sheet of 'paper' — for your document; this can be scrolled around and resized, and displays any graphics you may have imported into the document, together with your text.

The first thing which impressed me about ProWrite was its ability to display font types, sizes and styles on screen as you type.

it imperative to get a large font size on the disk for headings.

I simply backed up the program and enlarged the fronts directory by copying over my typefaces after first deleting the ProWrite demos from my backup disk to make room; the program disk comes pretty full!

Manipulating Images

The most striking aspect of the program has to be its ability to incorporate graphics within documents. And it is this which lifts ProWrite from the run of the mill word processor and really does elevate it into a class of its own in the field of DTP.

The program can deal with a whole screen of artwork, but more usually I found myself using either brushes from DeluxPaint or windows from Aegis Draw (both being merely graphic cut-outs of varying sizes).

And really, this ability to see artwork on screen, placing the illustration anywhere at any time with all the word-processing functions still active, is what is at the heart of ProWrite.

Loading graphics is virtually idiot proof, and transporting them between documents is as easy as cutting and pasting text — only you're manipulating full colour images.

processor; the fact that graphics play a large part in the program's concept hasn't diminished the power of text manipulation at all.

As well as the now familiar selection of options from pull-down menus, commands are duplicated by keystroke combinations — although I did miss not having a keyboard overlay to help me through the early stages.

And a novel feature is the ability to generate foreign accent marks by using the ALT key in combination with another; ALT/j gives an umlaut and ALT/h a circumflex for example. Sub and superscript text is readily available, together wth the usual bold, plain, underline and italic styles for each font.

ProWrite's ability to allow several fonts on screen at one time is quite astonishing in a word-processor, and in fact I felt more as if I were using a giant version fo Delux Paint at times!

On the other hand, you realise that in reality you ARE using a graphics utility after all when it is time to print out your document, because what the printer is doing is a graphics dump.

This is obvious when you think about it, but if, like me, you're used to Scribble! word processor rapping out a letter in a mintute or so, it comes as a surprise to have to wait as the printer head wends its sluggish way bit by bit.

PRO WRITE

NLQ

CONTINUED

Prowrite defaults to the Apple Image-Writer II printer, though changing it to suit your own set-up is easily achieved by amending the Preferences printer option. The program's elegant use of colour — in both graphics and text — means its true potential will only be realized by owners of colour printers, though acceptable and striking black and white pages can be dumped with no problem.

The program also features an ability to print a document in Near Letter Quality, provided your printer is capable of this mode — but the sting is that if you select this option your font styles and graphics won't be reproduced. Requesting a quick Draft copy of your document will similarly simply print standard text.

Word processing commands are well understood these days, and ProWrite gets about its business of Search and Replace (with a Caps sensitive option, whole word scan or part), delete and insert in a businesslike manner; blocks of text can be cut, copied and pasted retaining the font they were typed in, and graphics too can be placed anywhere and at any time.

The formatting controls have style and were very easy to use; ruler settings were a dream with total mouse control of line length, margins, indent and tab, anywhere in the document.

And a very powerful menu option allows the format for a paragraph to be exported to another section of text, eliminating time-consuming adjustments for complex documents who impact relies as heavily on design concepts as font styles and graphics.

Options for paragraph formats include ranged left, right, centered and justified, with single or double line spacing.

Prowrite allows page headings and footings for document, and in a very friendly manner allows selection of the text style for page numbers (ie 1,2, I,II, A,B).

You may also have a series of documents open at once, each new one overlapping the earlier ones, and text or graphics can be cut from one and pasted to another with the minimum of fuss. Individual document windows can each be sized, placed or closed at will.

But because graphics tend to use large chunks of memory, it is advisable to maximize the amount of memory available by closing down all other workbench windows (ie the ProWrite window itself or the CLI) after the program has loaded, though ProWrite is fully compatible with the Amiga's powerful multi-tasking ability.

Throughout, requesters for commands are uncluttered and easily mastered, with foolproof help and sound tuition from the stylish 67 page manual. And topping all this is a status display which, when called, tells you exactly how many K you've got left to use.

ProWrite is a striking, innovative and professional package with no loose ends; it captivated me from the start. As a user of Deluxe Print, Pagesetter and Scribble! I can see myself being lured away by the ingenuity and power of this newcomer.

It is that appealing a program. Something, as they say, to write home about...

Peter Lee is a professional journalist who designs newspapers.

This sample document was written after 35 minutes on ProWrite.

It's very simple to master & can help create stunning page lay-outs such as this.

Now Look At Word Processing In A Whole New Light.

ProWrite.™ All Others Pale By Comparison.

You chose Amiga® because you wanted something more. Now you choose your software for the same reason. Which makes choosing ProWrite word processing a very bright idea.

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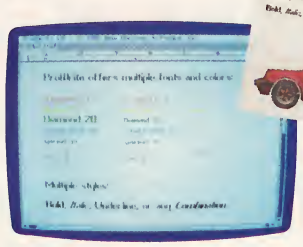

Creative Control: A Brilliant Stroke. With six pull-down menus, just a click of the mouse or a few keystrokes is all you need to create, delete, copy, alter, move and otherwise manipulate text. Multiple selections create a limitless choice of character fonts, colors, sizes and styles. Customize everything from a daily diary to an annual report, including color graphics. And with headers and footers always clearly displayed, ProWrite makes even advanced formatting as easy as dragging a mouse.

Ease of Use: Another Bright Idea. ProWrite delivers more of what you bought Amiga for: Professional output. Multi-tasking power. A "creative edge." You can open up to eight windows at once—and perform a variety of editing tasks between them. With ProWrite, you'll always know exactly what you're doing, because you see it done—in living color—right before your eyes.

See for yourself what you get with ProWrite. Then, just for fun, take a look at the others—and watch them pale by comparison.

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MAXIPLAN 500

Amiga 500/1000/2000 with minimum 512K

$149

Maxiplan is becoming a well-known name for spreadsheets. Oxxi, the manufacturers, have come up with a version especially designed for the Amiga 500. Ian Bennett sees how it fits the bill.

Modern computer software tends to fall into one of two major categories. Dedicated application software (tailor made) or general purpose. Examples of the first category could be; a program to handle the management of a large pig farm or a program designed to control the movement of a large astronomical telescope. However, in the average office environment the requirements are normally less specific and can usually be adequately provided for by 'off the peg' general purpose programs. Within this group fall Wordprocessors, Databases and Spreadsheets. Over the years these have all developed into flexible and multi functional tools capable of caternig for an ever larger range of businesses and applications. The emphasis is now on VERY user friendly programs that can be used by anyone from the data processing manager to the tea lady. Programmers for the Amiga have a distinct advantage here, as the Amiga comes complete with its own user friendly interface called Intuition, Oxxi has taken advantage of this and have come up with MaxiPlan 500, a very powerful feature packed spreadsheet.

One of the first tests I apply to any software package that I review is to see how far I can get through it without having to refer to the manual. Maxiplan fared very well here. With no more than a basic knowledge of spreadsheets and an acquaintance with the Amiga environment most people should find their way around Maxiplan without much trouble and be able to perform the more usual spreadsheet functions without having to thumb through the 224 page Instruction/Tutorial guide every few minutes. Commands can be initiated via the keyboard or mouse. The function keys have been set up to enable the more frequently used commands to be issued with a single keystroke. Likewise many of the Amiga command key combinations have had functions assigned to them enabling you to give the poor old mouse a break from time to time.

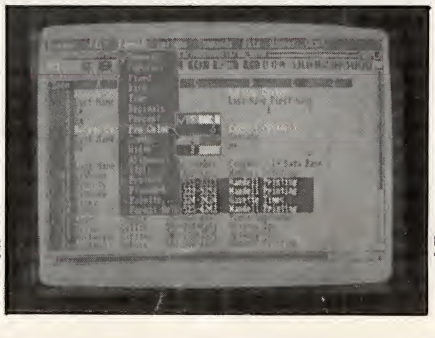
Say Command

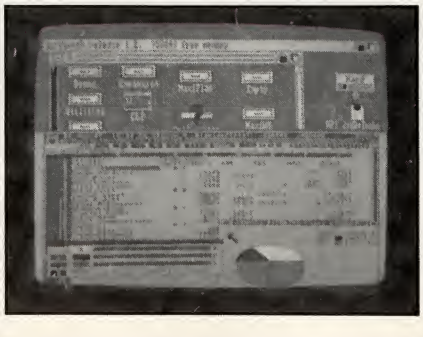
The ultimate objective of using a spreadsheet must be to obtain the results of calculations performed on the data fed into it. Several pages of numeric data and statistics may not be the ideal form in which to impart this information. Maxiplan, however, incorporates a chart generation facility capable of displaying data in up to 8 charts per worksheet including scatter, pie, 3D pie, bar, 3D bar, line, area and exploding pie. Another aid in formatting data comes in the guise of an integral database tool that will permit up to 63 user definable databases per worksheet. These databases can be sorted by up to 63 different criteria, can selectively calculate records and can be searched to locate records that fulfil various criteria.

Last night I did my annual tax returns using Maxiplan. Just as it finished its last calculation it paused and TOLD me that I was now in a position to retire and that my net profit for the year had exceeded £3,000,000. When I say 'it told me' I mean it in the literal sense, it actually spoke to me. Maxiplan can be asked to perform a function based on the result of a previous operation. In this instance my profit margin had exceeded £3,000,000 (ha ha ha Ed) and as a result it used the SAY command to get the Amiga's built in speech facility to tell me the good news.

I already had a couple of spreadsheets, before I received my copy of Maxiplan and although they seemed satisfactory at the time I would find them very plain and awkward to use if I were to go back to them now. Maxiplan has just about every function I could ask of a spreadsheet and then a few more. A good example of this is its ZOOM command. This, when invoked, displays 64 columns by 40 rows of the worksheet. The type of entries in each cell are shown by means of a colour code. Whilst in this mode it is possible to leap to any cell within the 512 columns by 65,530 rows with just a few clicks of the mouse. The manual is clear and easy to read and will take an absolute novice with no computer experience whatsoever up to a reasonable level of competence in under an hour. I could sit for hours, writing about Maxiplan, with all its features and its easy of use but instead I will just leave you with this... Oxxi — the name to watch in 88?? **I.B.**

Contact: Oxxi Inc P.O. Box 4000 Fullerton, CA 92634, USA (714) 999-6710.



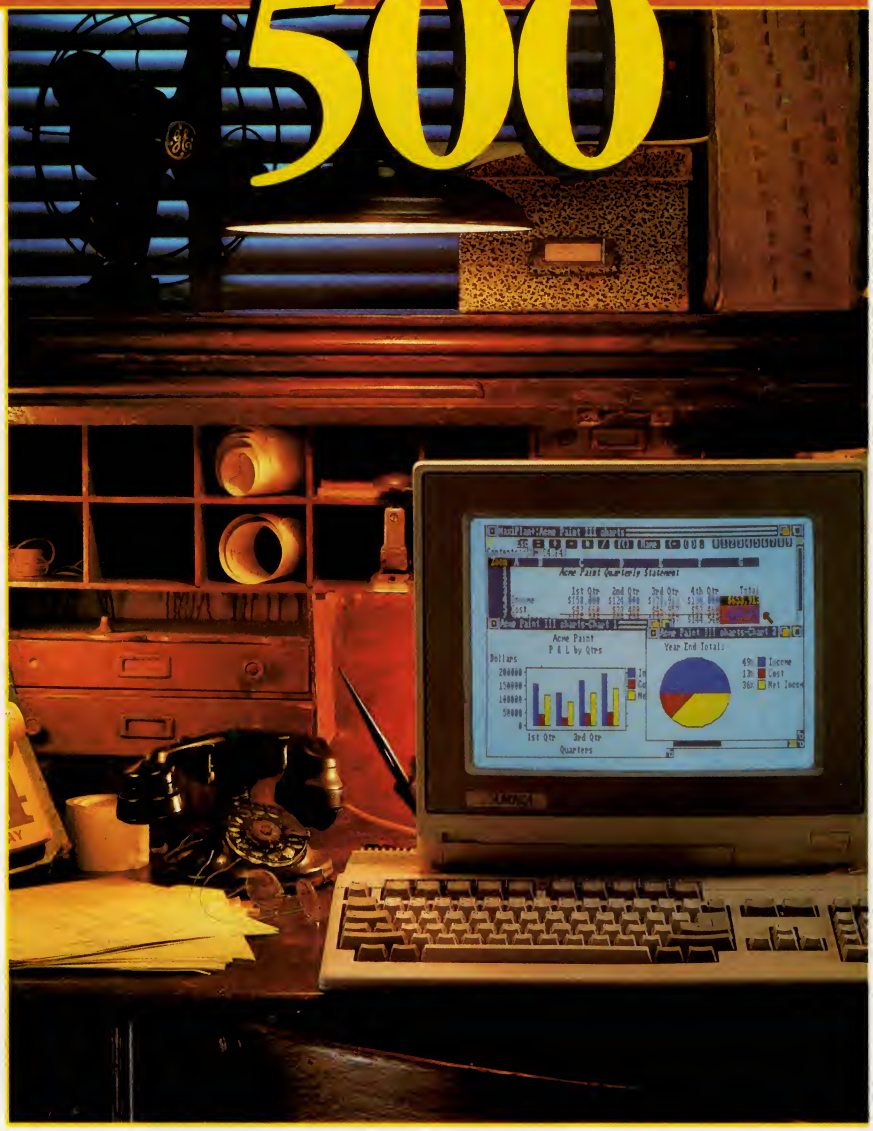


MAXIPLAN 500

MaxiPlan 500 is designed for a 512K memory environment without sacrificing any of the features which makes MaxiPlan the most powerful and easy-to-use spreadsheet program for the Amiga. Named Spreadsheet of the Year for 1986 by a poll of Amiga Users Groups, MaxiPlan will soon become your choice for spreadsheet analysis, database management, and business graphics.

For more advanced spreadsheet analysts, **MaxiPlan Plus** is available with a Macro Language facility similar to Microsoft Excel. Over 95 Macro Functions allow the creation of mini-programs to automate spreadsheet activities.

As your dealer about MaxiPlan 500 and MaxiPlan Plus as well as these other programs from Oxxi.



Nimbus — Cash Basis Accounting System for Small Businesses

Customers and vendors are taracked by name, rather than by number. Pre-defined invoices provide a summary of customer account aging. Pop-up mini menus guide the user through each account activity. Nimbus is for the small business person who does their own books and hates learning about formal accounting systems.

Benchmark Modula-2: Software Construction Set

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Review by Chess Grandmaster, Raymond Keene, chess correspondent of The Times

Chessmaster 2000 on the Commodore Amiga

I examined the Chessmaster 2000 thoroughly over one weekend and also arranged for it to play a game under tournament conditions against a young human opponent — a very promising 8 year old boy. Chessmaster 2000 has quite nice 2-D colour graphics. The user controls a yellow hand which is moved by the "mouse" — the hand picks up a piece and moves it to its new square.

The program has many outstanding features. It can show which pieces have been captured. It can show what it is thinking about. It can suggest a move to the user. It can solve chess problems such as "White to play and mate in three moves."

It has a synthesized voice which articulates phrases such as "Your move", "You got me" (when the user has captured one of the program's pieces), "Gotcha" (when the program captures one of the user's pieces), etc. Fortunately, this voice can be turned off — the Martian-sounding speech can get tiresome after a few minutes.

One of the most useful features for the professional person who likes to play chess, is called "If the boss wanders by". If you are playing a game at work and you don't want to be caught out, you can invoke this feature and a spreadsheet appears with the caption "Analysis of real estate investment". Of course, if your job does not entail investment analysis you might still be in trouble.

The program has all the features usually found in chess programs, and its playing ability is not bad. There are 12 different levels, and while the top levels are suitable for average club players, the lowest level is good for children and the less experienced player. My 8 year old nephew enjoyed the following game. He lost a pawn early on but computers are notoriously weak in the endgame and he managed to turn the tables. One notable point about this game — just after the computer played g7xf8 it realised that Alastair could promote a pawn to a queen, with a winning material advantage and so it resigned!

Real enthusiasts can save their games on disk, print out the moves of their game, play timed games using the built-in chess clocks etc. . . . All in all, an impressive product.

The Game:

White: Alastair Levy
Black: CM2000 Playing on level 1
King's Pawn Opening — French Defence

1	e2-e4	e7-86
2	d2-d4	d7-d5
3	e4xd5	Qd8xd5

Programs like to centralise their Queens asap. Since the Black Queen can become exposed on the d5 square "human" theory prefers the pawn recapture 3 . . . e6xd5!

4	Ng1-f3	Nb8-c6
5	Bc1-f4	Bf8-d6
6	Nb1-c3	

As expected, White starts to hound the Black Queen.

6	. . .	Qd5-f5
7	Bf4-g5	Ng8-f6
8	Bf1-d3	Qf5-g4
9	0-0 (Ke1-g1/Rh1-f1)	Nc6xd4

Ingenious. Computers nearly always grab hot pawns.

10	. . .	Nd4xf3
11	Qd1xf3	Qg4xf3
12	g2xf3	g7xf6

In the opening the program has absolutely outplayed its young human opponent. Black has three major advantages, which, taken together, should mean an automatic win for Black. These are:

a) An extra pawn;
b) Two Bishops operating against White's Bishop and Knight;
c) White's pawn formation is shattered and exposed.

To win, though, the program must form a plan.

13	Kg1-h1	Bc8-d7
14	Nc3-b5	Bd7xb5

Better is 14 . . . Ke8-e7! The program does not understand that opposite-coloured Bishops help White to reach the haven of a draw.

15	Bd3xb5+	c7-c6
16	Bb5-d3	Bd6-e5
17	Rf1-g1	Be5-d4

If 17 . . . Be5xb2 18 Ra1-b1 followed by Rb1xb7.

18	Rg1-g7	Bd4xb2

This is still wrong and grants White tremendous activity. Better is 18 . . . Bd4xf2.

19	Ra1-b1	Ke8-f8
20	Rg7-g2!	

Not 20 Rg7xh7 Rh8xh7 21 BD3xh7 f6-f5! when White's Bishop is incarcerated.

20	. . .	Bb2-c3
21	Rb1xb7	h7-h6

Black's win is slipping away. With "opposite Bishops" and active Rooks, White should be able to hold the draw now. 21 . . . h7-h6 should, in fact, be replaced by 21 . . . f6-d5! restricting White's Bishop.

22	Bd3-e4	Ra8-d8
23	Be4xc6	a7-a6
24	Rb7-b6	Rd8-d1+
25	Rg2-g1	Rd1xg1+
26	Kh1xg1	Rh8-g8+
27	Kg1-f1	a6-a5
28	Rb6-b3	Bc3-e5
29	h2-h3	Kf8-e7

The position should now be drawn.

30	Rb3-b5	Ke7-d6
31	Bc6-e4	a5-a4?

Weakens the pawn. Black should play 31 . . . Be5-c3 defending the a5 pawn. The program at this level evidently cannot see far enough in advance to realise that the vital Black "a" pawn must now be lost.

32	Rb5-a5	Rg8-g7?

A really pointless move. The further the game proceeds via simplication into the endgame stage, the more helpless the program seems to become.

33	Ra5xa4	f6-f5
34	Be4-d3	Rg7-g6

Also hard to fathom. Black should rush his Rook to the Queen's wing to hold up White's passed pawns.

35	Ra4-c4	Kd1-d5
36	a2-a4	Rg6-g8

At last. The Rook scurries back for defence.

37	a4-a5	Rg8-a8
38	Rc4-a4	

A good rule: put your Rook behind the passed pawn you want to push.

38	. . .	Ra8-a7
39	a5-a6	Kd5-c6
40	Ra4-b4	Be5-d6
41	Rb4-b2	Bd6-e5
42	Rb2-b3	Ra7-c7
43	Kf1-e2	Kc6-d5
44	Ke2-e3	Be5-d4+
45	Ke3-e2	Kd5-d6

Black has a powerful blockade on White's passed pawns. His drawing chances are still very high.

46	Rb3-b4	Bd4-c3?

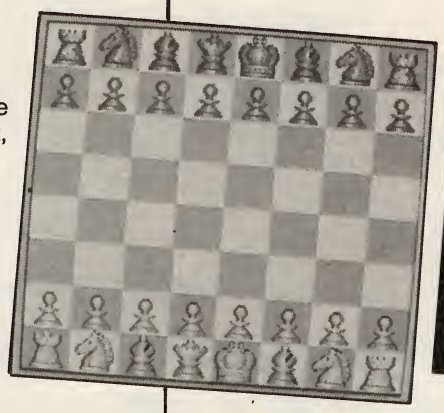
A critical error. The Bishop must retreat to a7 to maintain the block on White's "a" pawn.

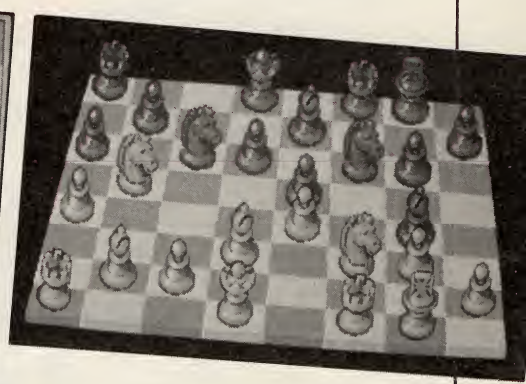
47	Rb4-b6+	Kd6-c5
48	Rb6-b8	Rc7-d7
49	f3-f4	Bc3-g7
50	Rb8-b7	

The decisive move.

50	. . .	Rd7-d4
51	Rb7xf7	Bg7-h8
52	Rf7-f8	Bh8-g7
53	a6-a7!	Bg7xf8
54	a7-a8=Q	

White now has a decisive material advantage of Queen for Rook. The program resigned.





64 MEGABIT BUBBLE

Anthony Mael takes a look at a French company's achievement in blowing an interesting electronic bubble.

64K? What about 64 *megabits?* And what about a memory that does not disappear when you switch off the computer? That would mean you could have a tiny computer of huge power that you could carry around in your pocket. The key to this is 'bubble memory' and Sagem — a French company — are developing a memory storage device based on this technology that will contain at least four times the amount that a conventional silicon chip could hold in the same size. 64 megabits is equivalent to about 1.3 million words and will fit, using bubble memory, on to a piece of circuitry about 1 inch square.

Bubble memories store information in the form of tiny cylinders on a magnetic base. The presence or absence of a cylinder, or bubble, represents the 1 or 0 of the digital code used in all computer memories. A bubble can be created and erased electrically, but because it is magnetic, it is unaffected when the power is switched off.

Bubble memories have two main advantages over conventional silicon memories: they retain the information stored in them even when the power is switched off and they are tougher and more resistant to rough treatment. They can stand up to vibrations and wide temperature variations so they can be used in difficult environments such as in robots in factories. Hitachi, one of the four world manufacturers of bubble memories ran tests that showed that in 1 billion hours of operation there will be an average of only 15 bubble memory failures.

Sagem's new technique, ion implantation, has been used by the semiconductor industry for some time in the production of standard silicon integrated circuits. Its application to bubble memory production is more recent, and Sagem is already selling a one megabit memory that is made with the process.

Bubble memories have proved harder to make than was anticipated, and their high price relative to semiconductor memories has meant their potential market has been smaller than predicted.

"The cost-per-bit will be lower, and for the market to grow, bubble memories must have a major packing density advantage over other memories, which is why the 16 and 64 megabit devices are so important," says Guy Spriet, of Sagem.

In the ion implantation techniques developed by Sagem, as in silicon chip manufacture, the base on which the bubble memory is created is bombarded by a stream of ions (charged atoms). This changes the pattern of the circuit elements and the orientation of the magnetic field.

The result is a four-fold increase in the density with which bubbles can be packed on to the chip, compared with conventional production. This turns a one megabit memory into a four megabit device, at little extra cost.

The cost per bit of bubble memories is usually higher than that of silicon memories — about 5p per 1000 bits of bubble memory, compared with about 0.5p for the same amount in silicon. But the high density bubble memory will reduce costs per bit because although the number of bits will increase the size of the chip itself will not. Sagem is now talking to Hitachi about jointly developing a 16 megabit device, followed by a 64 megabit version.

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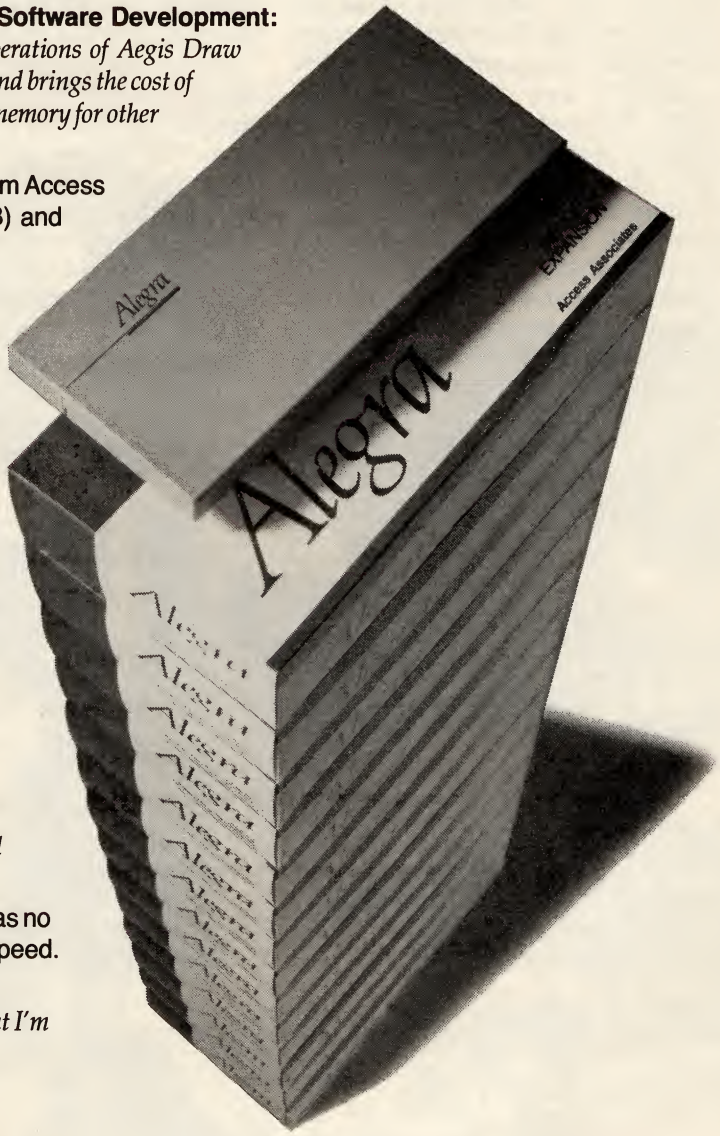

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2 MB MEMORY EXPANSION

From Robtek

Amiga 1000
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Ian Bennett has his memory expanded and tells how it feels.

What! Another 2 meg memory expansion box? So what makes this one so special? It looks much the same as all the other units, a 2" x 8¾" x 4" (That's 5cm x 22cm x 10cm to all your modern folk) metal box in Amiga beige. It plugs into the right hand side of the Amiga and passes on the expansion bus. Nothing unusual there. However, it does have two noticeable external differences; a red LED on the front facing end and a small two position switch at the rear. The LED, when illuminated, indicates that the memory has been initialized and is available for use. The switch enables/disables its ability to be autoconfigured at power up (WB 1.2 only). If for some reason you would prefer to power up without the extra memory being installed, it is not necessary to unplug the expansion. You can simply flip the switch and it will be ignored during the boot sequence. If it is already powered up when you decide you would rather be without it, you can just flip the switch and then perform a reset (CTRL + A + A). This will release the additional memory. At any given time you can see at a glance whether or not the memory is initialized by checking the status of the LED.

Some of the more recent memory expanders offer the option of adding additional features within the same box. The Robtek unit is just such a creature. At the moment there are two extra modules available for it a lock/timer (its purpose is self explanatory) and a kickstart eliminator. This, when installed, means that after power up you no longer need to insert the Kickstart disk. It will, in fact, immediately display the 'insert Workbench' logo instead.

Those of you who are already the proud owners of Multi-megabyte machines will have no doubt encountered the missing graphics and some of the other curious memory related problems that occur from time to time. When these nasty bugs raise their ugly heads there are normally only two ways around them. 1) Use one of the public domain utilies that grab all the external memory to ensure that the chip memory is used. 2) Unplug the extra memory. As the first method does not always give a satisfactory result, the latter is often the only reliable recourse left. If, however, you had a Robtek 2MB memory expander, then all you would need to do is flip a switch and perform a reset. Simple eh?

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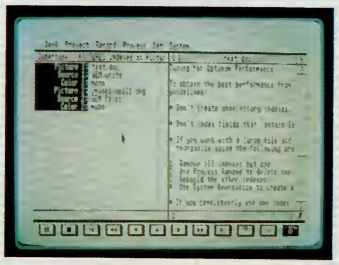

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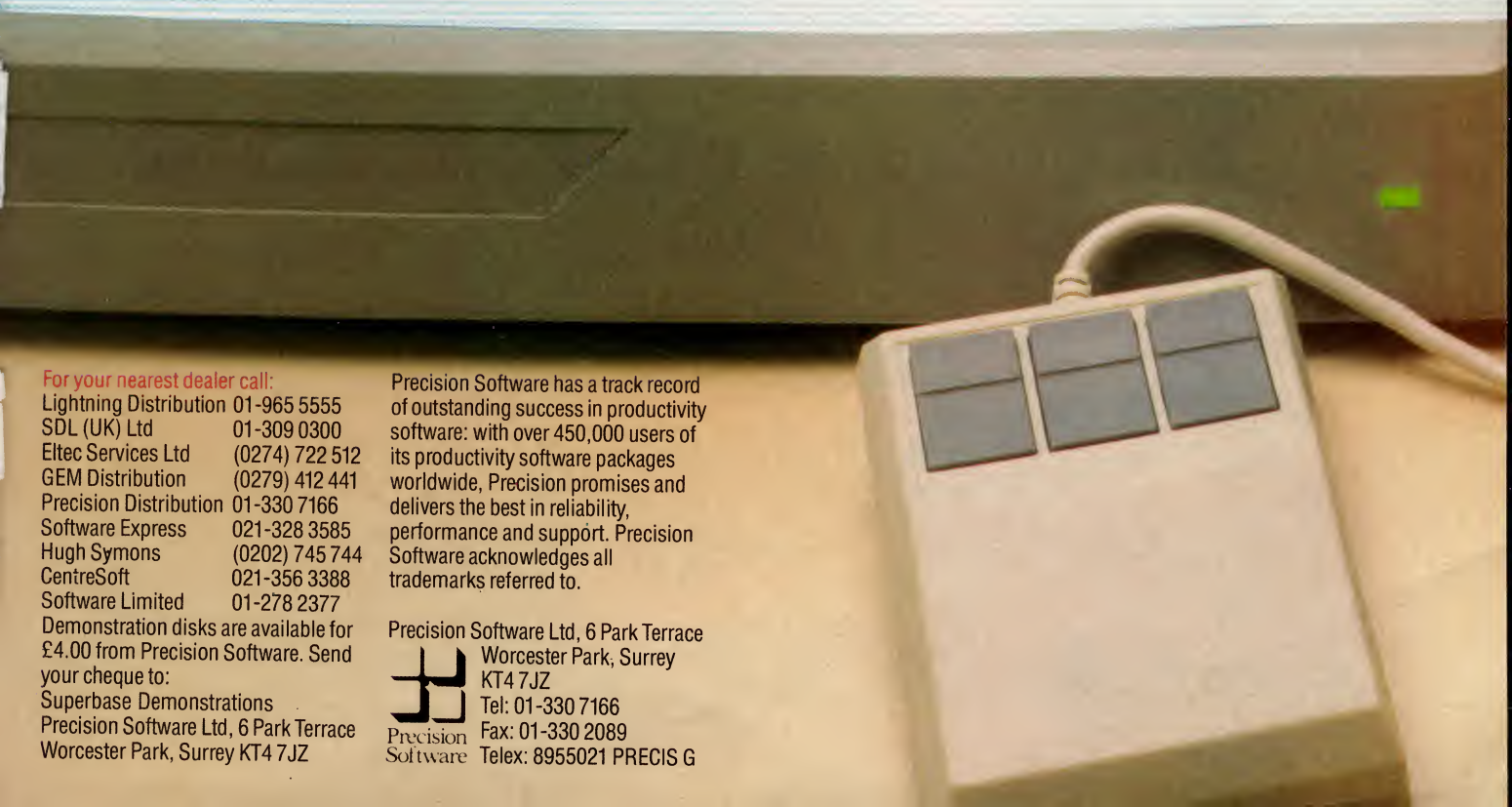

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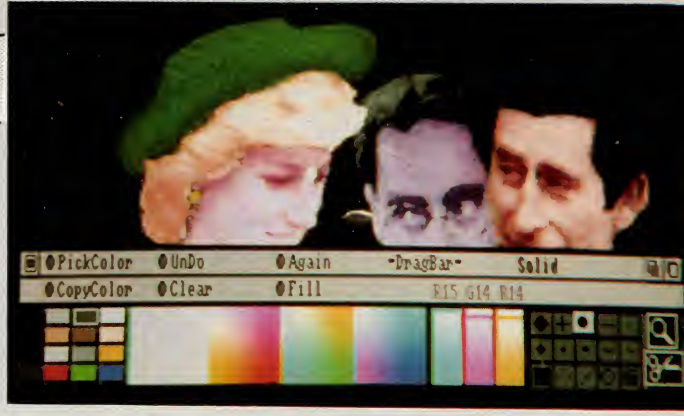
Digipaint

Hugh Riley, creator of 'Rolls Royce' one of the great classic pictures of the early days of the Amiga, has examined the latest Amiga graphics package — Digipaint coming from Newtek the originators of the digitiser Digiview, Digipaint has been eagerly awaited. Hugh Riley explains why it gives him a sharp impression.

Most pictures seen on the Amiga are drawn in 32 colours at a resolution of 320 x 200 pixels —the same resolution as the CBM 64. At twice that resolution the palette is reduced to 16 colours. Each colour in the palette is composed of varying amounts of red, green and blue. There are 16 possible shades of each primary colour giving a choice of 16 x 16 x 16 different colours i.e. 4096. Digipaint, for the first time, allows you to use a palette composed of all 4096 possible colours and have them all on screen at the same time.

The effect of this, even in low resolution (320 x 200) images, is to soften the colour changes, reducing the 'stepping' normally associated with computer art and producing a much more clearly resolved picture.

The result is startlingly realistic and from an artistic point of view marks a



dramatic increase in the power of the Amiga. In high resolution the effect is virtually photographic. Those used to paintstakingly drawing with a CBM 64 in 16 present colours (always mindful not to overstep the colour boundaries of each character) cannot fail to be impressed at the advances made in the last two years. Those of you who have been delighted by the ease of drawing with Deluxe Paint 2 will be enthusiastic about the extra facilities Digipaint offers.

Very Impressive

The program will accept any IFF image so any pictures drawn on Deluxe Paint or similar can be enhanced with Digipaint. Pictures framegrabbed by Digiview can be treated in the same way or original work can be drawn using Digipaint itself.

One of the tutorial pieces in the manual involves colouring a monochrome digitised portrait filed on the disk. A quick outline of the face with the cursor, a click on the fill icon, and the black and white image takes on smooth flesh tones. Repeat the same procedure with different colours on the lips, earrings and eyes, and you very quickly have a full colour picture. It is very impressive. Incidentally, a full 640 x 400 digitised image can be pulled into Digipaint in 320 x 400 mode. The program automatically adjusts the picture, enhancing it by using extra colour to retain the impression of hi-res.

The manual itself is a 32 page booklet (absolutely essential reading matter — on loading the program you are asked for a key word to be found in the text). Intelligently laid out, it takes you through the operation of Digipaint in a series of tutorials which rapidly familiarise you with the utility. It explains each option clearly and in depth, giving an understanding not only of the effect but also of the way in which it works.

The program allows you to draw elipses, circles, rectangles, straight lines or freehand with a choice of 12 preset brushes. Alternatively you can cut your own from from the screen in a variety of ways. Whereas in other packages I've seen a user defined brush is picked up as a rectangle, here you can define an irregular brush by outlining the area you want to use (lasso cut and paste). Any brushstroke or even the part of the picture under that brushstroke can be instantly lifted as a custom brush. I found the lasso an enormous improvement over the usual method since, if you are accurate, there is no need to treat the brush after picking it up.

The colour menu is divided into two menus. One holds all possible variations of the colour currently selected. Putting these colours directly onto the screen pixel by pixel my result in 'fringing' i.e. an inability to place two contrasting pixels side by side without an intermediate change. This problem is solved by the second colour menu in which you designate any colour as part of a permanent palette of 16. These colours can be placed anywhere on the screen without interferring with neighbouring pixels.

There is a fill option which will treat the colour in whatever area you outline. Magnification is possible for close up work and it is possible to scroll around the whole screen. AGAIN is a very useful function, new to me, which allows you to repeat the last drawing action and, with undo, it lets you experiment with different colours and shading techniques without having to redraw each time. RUBTHROUGH can be activated to bring parts of a picture in the spare screen through to the screen in use. Very useful to blend two pictures together or combine elements of both. In the effects menu it is possible to alter the size of the picture, flip the screen, or soften the whole image.

Mode Menu

The MODE menu is the most interesting to me. It decides what effect any of the previously mentioned operations will have on the picture. The default command is to use sold colour ie. to work in the specific colour you have chosen. There are, however, 11 other options which alter the RGB values of the paint colour in relation to the colour already on the screen.

BLEND, TINT, and LIGHT TINT average paint and screen colours out to different degrees, giving translucence. MINIMUM picks the lower of each RGB value between paint and screen, usually darkening a picture but often producing bizarre colour change. MAXIMUM has the opposite effect. ADD and SUBTRACT will add or subtract the RGB values of screen and paint to a maximum of 15 (white) or a minimum of 0 (black).

Three MODE commands treat the RGB values in binary — XOR, AND and OR. On the whole XOR will seem to give a reverse image, AND pushes the colours on screen towards the colour of the paint (useful for colour separation) and OR will add colour or lighten a picture.

The effect of all these modes is unpredictable without experience but with a little patience and observation it becomes easy to use them creatively and with confidence.

Shading is the last item on the MODE menu. With it you can automatically produce diffused on an object in any colour choosing the amount of dither and the direction of the light source.This command, used with oval and square commands, gives impressive spheres and cylinders, graded through many shades.

I like this package very much. The style of the manual, which takes pains to explain *why* different sections have different effects, allows you to understand the process of drawing on a computer screen. This approach is unusual and very revealing to anybody trying to resolve their fluency in traditional art skills with their technofear of computer systems — a very real block to a lot of people. Software like this on a computer like this gives the chance to experiment with a new and stimulating medium.

Commercially, Digipaint could be used effectively in publishing, advertising and video, both for preparatory and finished artwork. Used with a digitiser, Deluxe Paint and genlock software it provides the basis of a flexible and powerful art studio.

If you own these other packages then Digipaint is essential. If you simply want to draw on the screen then using this package you will be amazed at the clarity of your work.

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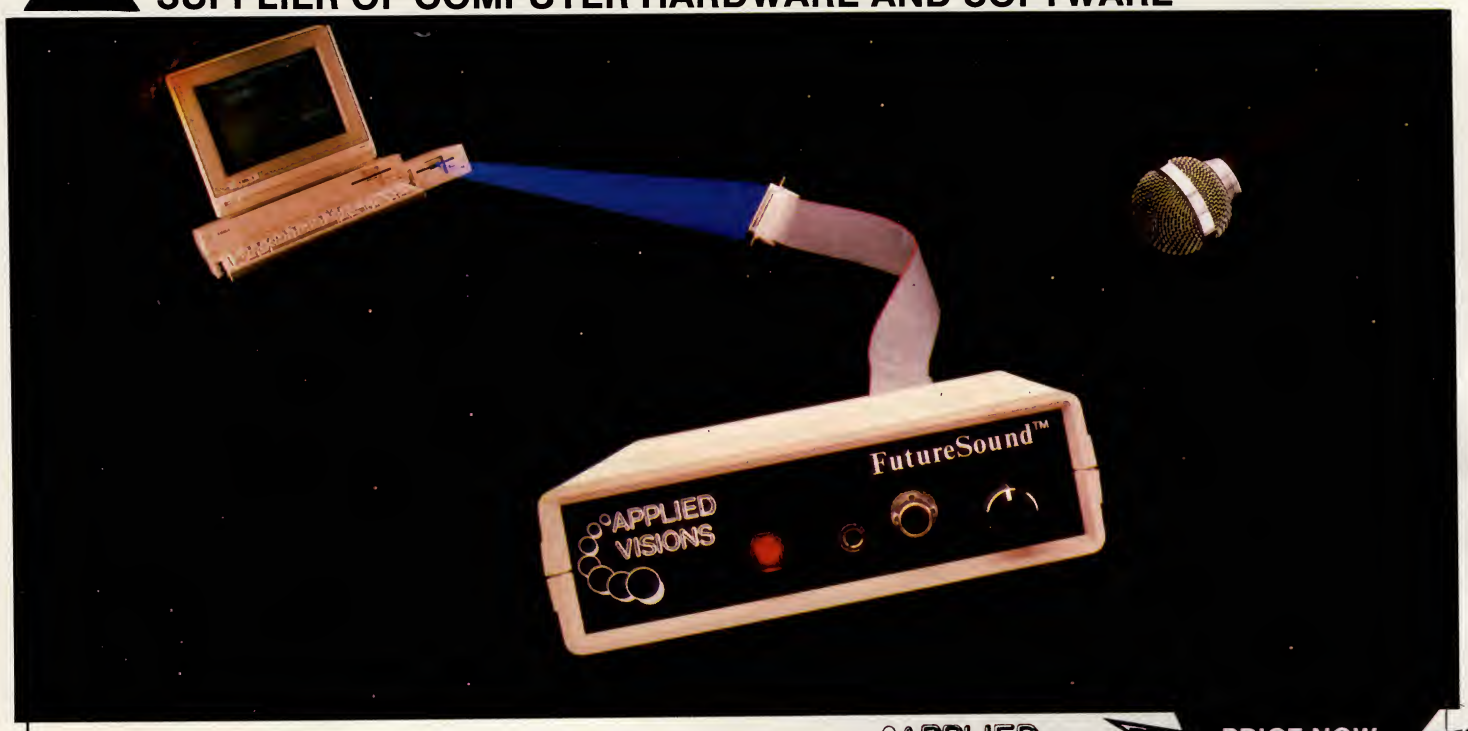

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The OPEN THE POD BAY DOORS HAL Line that appears on the Deluxe Video demo disk was actually one of the very first recordings ever made using Futuresound.
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CCI JANUARY 1987
QUOTE
A sound created with Futuresound and saved in IFF could be read into INSTANT MUSIC or DELUXE MUSIC for further manipulation.
Using Futuresound is simply a matter of making certain that everything is properly connected and then loading the software.
If Deluxe Paint made you look, then Futuresound will make you listen.

YOUR AMIGA JULY 1987
QUOTE
Futuresound is a professionally presented product, from the solidly built hardware to the neat manual with large type and clear diagrams. If your hobby stretches to £175, or sound sampling is something you need to achieve on the Amiga, then I am unaware of a better way of performing it.
By Anne Owen

FUTURESOUND is fully IFF compatible (actually three separate formats are supported) your sounds can be used by most Amiga sound applications. Such as Aegis Sonix, Deluxe Music Construction Set, and Deluxe Video Construction Set from Electronic Arts.
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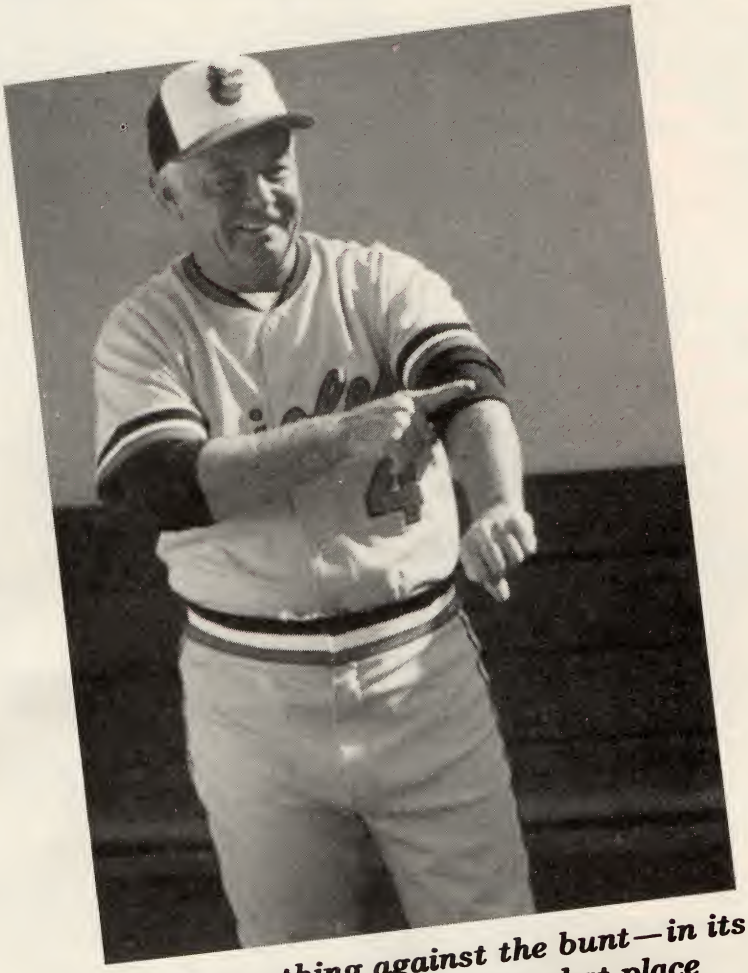
"When I die, just write on my tombstone, 'The Sorest Loser That Ever Lived.'" Earl Weaver



"I've got nothing against the bunt—in its place. But most of the time, that place is at the bottom of a long-forgotten closet."

What is the most popular drink in the world? Coca-Cola? What is the most popular sport in the world? Football? Not American football but what they call in the USA Soccer European style. Yes, but what's that got to do with Coca-Cola? Well, they held a football match at Wembley Stadium in the UK not long ago between what was practically the best team in England and a Rest of the World team that included Maradonna, internationally considered the world's greatest player. And they had difficulty filling half the stadium's 100,000 or so capacity. Yet the very next day, in the same stadium an *American* football game was held that was sold out weeks before the Denver Broncos and the Los Angeles Rams arrived in London. Why? Because TV has made American football into a star sport that, in spite of its complications to the inexpert eye, has captured the public's interest and affection like... well like that other piece of now worldwide US commercial imperialism — Coca-Cola. What they do in the US today...

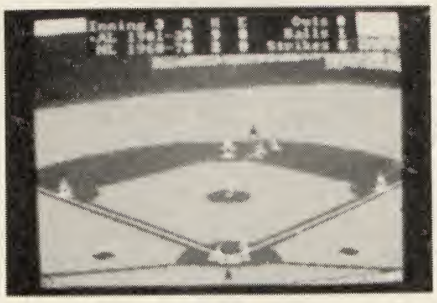
So we are presented in Electronic Arts' Earl Weaver Baseball with another example of a game that is still something of a mystery to most people who haven't been brought up on the sandlots of American towns and cities. (What's a "sandlot"? Well, that's just one of the many new terms you'll be learning with this game!)

Will you or anybody else take the trouble to learn those new terms and play a game that has got to be a new experience? Well, Electronic Arts things so and so do I. Why? Well, for one reason, in the UK, baseball will shortly become a TV sport, which is how the interest here — now approaching fanaticism — was first created in American Football. And you can see that baseball is an addictive game when you look at the countries, other than the US who already play it. Japan, Korea, places like Puerto Rico and Panama — anywhere in fact that the Americans have gone in force and with sufficient time to teach the population how to 'play ball'.

Baseball is to the American "colonies" what cricket is to the remains of the old British Empire. And as any schoolboy in England, Australia, the West Indies, India and so on understands the somewhat complicated rules of cricket, I don't think Baseball, which is pretty complicated it must be admitted, will stump that kind of game player.

Arcade game

Why all this about complication? Well, Earl Weaver Baseball does look fairly difficult at first sight. All those "sandlots" (street or near street playing areas) "screwballs" (it's something the pitcher throws not someone who goes out and buys a Speccy today.) "steals", "squeezes" and so on might tend to frighten off the fainthearted but it's clear from just a few minutes play of this computer game that it isn't difficult to pick up — at least at a basic level. You can just get in there to play at what it calls "Arcade Game" level which means that you don't have to go into the higher complexities of management of teams and decisions of strategy. You just play against the computer — Earl Weaver — if you want and hit with the best of them or pitch away destroying your opponents. I

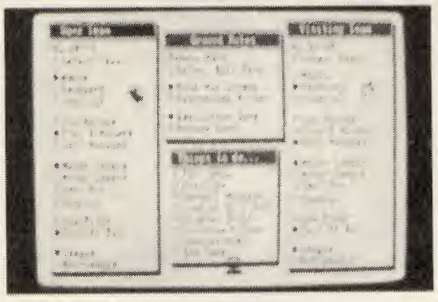


managed to go right through a game without a single score of any kind while Earl Weaver's team piled up the bases and home runs! On the other hand, I also managed to do the same thing in my favour when I put my team at the Major League level and the opposing team down there with the amateurs; one of the many and in this case very pleasing options available.

The magic of this game is that you can choose from a whole series of options that allows an almost infinite number of possibilities. If you just want to get into playing the game you use the Arcade, Play and Manage, or Manage-only options. If you are a baseball junkie and I'm sure you will soon be, you can use the General Manager and Commissioner Options to control everything from individual player statistics to designing your own ball park. (Now you know where that trendy expression "Give me a ball park figure" comes from, don't you?).

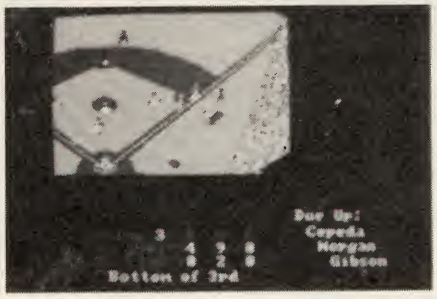
A tremendous amount of work has been done to make Earl Weaver Baseball just what it is. It is, at least to my only-slightly-familiar-with-baseball-eyes an excellent simulation of the real thing. This was confirmed by an American friend who really is a hard-core bleachers fan. (Bleachers? That's the stand where you sit and get bleached in the sun, dummy!). He told me that in the States they swear that Earl Weaver Baseball is the closest thing to playing the Great American Pastime for real. It has been acclaimed as the most realistic sports simulation ever and is a certain contender for the game of the year title.

How does Earl Weaver (Who he? You've never heard of Earl?! He's just the winningest baseball manager of all-time, that's all! At least that's what it says on the pack! Don't tell me you doubt Electronic Arts? Shame on you!) turn out on the Amiga? It must be said that the graphics are not sensational. They're okay. They move relatively smoothly and give you clear and



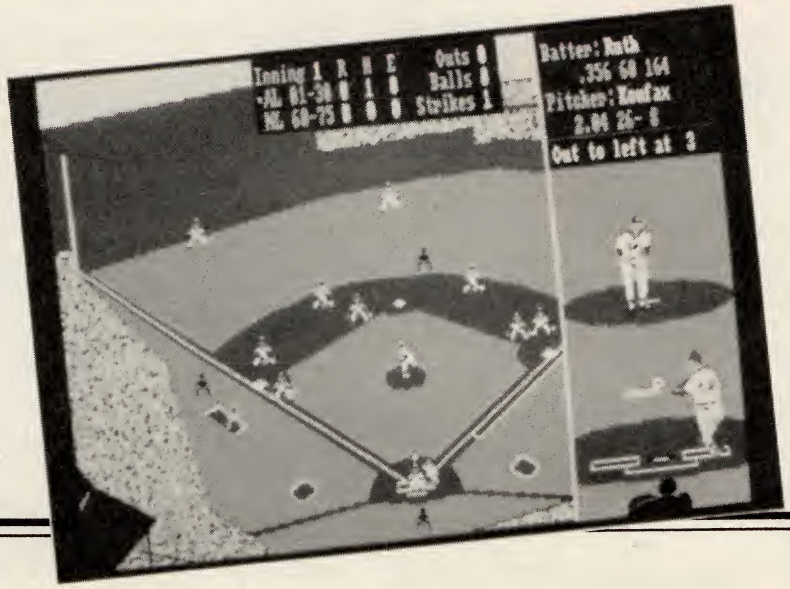
easy-to-see figures and movement. Especially in the split screen, bigger size pitcher and batter are effective. For the rest it is certainly no standout in the graphics area. The sound, which includes rather agreeable opening music of a street barrel-organ tune very well done, is mostly grunts and thuds as baseball bat clouts — or misses — the white ball. But this is after all, a simulation. And it's far better than 'Hardball' another baseball game that came out not so long ago.

What is important to you the player — or manager — is the



ability to smack that ball high, high up into the crowd — a Home Run is without doubt one of the best moments I've ever had playing computer games — it just hangs in the air, with its shadow chasing it, and then satisfyingly disappears into the stands! — or pitch that fastball past the batter at the plate and enjoy it. With Earl Weaver Baseball, Electronic Arts have produced a game that isn't so much an Amiga special but a game that any computer player will find challenging enough to come back to again and again. This is a game for the kind of player who has loved and put Leaderboard not once but twice at the top of the charts, for Earl Weaver Baseball is going to provide you not just hours or weeks but possibly months or even years of gripping entertainmetn. And what more can you ask from a game than that? Play Ball!

Z.M.S.



Play Ball:

Some of the effects in Earl Weaver Baseball:

★ Split-screen view shows pitcher/hitter confrontation close-up and all the action on the field. Camera angle pans, following flight of the ball.

★ Read pitches by the seams on the ball. Lifelike animation of the pitcher's windup and the batter's swing. Runners kick up the dust when they slide.

★ Digitized stereo sound. Batters are announced. Hear the crack of the bat, the call of the ump, the roar of the crowd.

★Actual simulation of baseball physics, including spin, trajectory, wind effects and play of the ball on astroturf or natural grass.

★TV special effects like instant replay, slow-mo, and freeze-frame.

They say it's 'Computer baseball like it oughta be!' And who's gonna argue with Earl Weaver (or Trip Hawkins?)!

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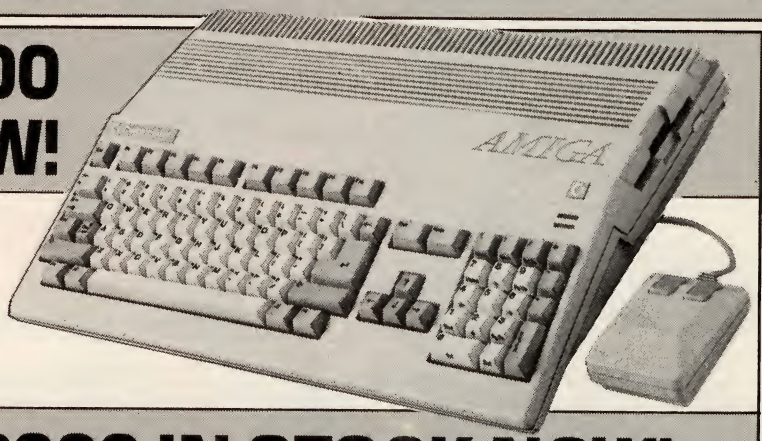

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ANCO'S AMIGA SCENE SETTERS

When the Amiga came on the scene we all expected miracles — games that would blow our minds with their gameplay as well as their graphics genius. So far, however, not so good. We're still waiting in general for the gameplay even if we've had some quite dazzling graphics. But they come from the Amiga's blitter chip and the games reviewer is a blasé creature . . . Ah yes, we say, this look like . . . and name something everyone knows or pretends to know. Yet nothing progresses all the time — not even software. We are probably asking too much, too soon for the 68000 programmers to achieve miracles at this stage — creating stunning new ideas on a new — or newish — machine.

Anco, well known for their C16 software, especially probably the best C16 game ever, Winter Events, have come up with a different concept. They have taken the classic game styles, the Boulderdashes, the Arkanoids and even the Space Invaders, and reproduced them on the Amiga. Of course, we have probably all played those games on earlier computers but new buyers of Amigas may not have done. Anyway, Anco, in effect, have produced a budget range, priced at £9.95 for a machine that as yet doesn't have hundreds of full price games from which to choose. Better than nothing . . .

Emerald Mine

Not wanting to break their tradition and release an original game, Anco's next Amiga title is Emerald Mine, or to everyone else Boulderdash. And original or not, don't get me wrong, this game is a great little number.

Emerald Mine is a blatant copy of the old fave Boulderdash – and no worse for that. And so far no-one else has done it on the Amiga. The idea is to collect a set number of gems from each cave. Each of the 81 caves is made up of sand and walls, with varying amounts of rocks, emeralds, diamonds, bombs, nuts, robots, flyers, beetles, gobblers, quicksand, keys, dynamite, and more. The player controls a man who can walk through the sand, leaving a tunnel in his path. The man and sand are not affected by gravity, but most other objects will fall if un-supported.

The first few screens are just a matter of collecting the required amount of gems within the time limit. In later screens there are often not enough gems in the cave, so the baddies must be used to create them. Some will simply explode when a rock is dropped on them, destroying everything within a short range around them. These can be used to break through walls to get at gems. Others turn into gems when crushed. Another source of gems are the nuts. Drop a rock on one of these and they crack open to reveal your prize.

Other surprises are the bombs that explode when dropped, dynamite sticks, the ever-growing amoebae, acid pots, alien-attracting wheels, and walls that turn rocks into diamonds.

The graphics are simple, and although more detailed graphics would have been nice, it doesn't really matter, this is an action game. One of the games best points in my view are the excellent explosion sound effects. With the volume turned up loud it's really satisfying to start off a chain reaction of bombs exploding each other (and frighten the neighbours!)

This gets my vote for the best of the bunch. I would expect a little more at full price, but for £9.95 is a great buy. Go dig for emeralds Amiga users, it's worth every penny.

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Karate Kid II & Goldrunner
Two of the most successful arcade games on the ST are now available on the Amiga.
Karate Kid II is the best karate game on any home computer and the animation is stunning.
Goldrunner is now legendary for the speed of its scrolling landscape. Wonderfully detailed back-drops and fantastic sound add up to making this the most challenging, most compulsive game for the Amiga to date.

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ANCO'S AMIGA SCENE SETTERS

CONTINUED FROM PAGE 106

Karate King

It seems now that just about every home computer has at least one karate game available. The Amiga is no exception. Karate King is in the much (over) used form with a side view of the two fighters. A total of16 moves

can be used by moving the joystick in all eight directions with and without the fire button pressed. Moves available include high punch, low punch, flying kick, spinning kick, and all the usual moves you would find in any other game of this sort.

Each player starts with 8 lives and a set amount of energy for each life. Every time a player is hit, he loses energy. When all his energy is lost he loses a life. The game is played over 9 levels, each with a different background. When in one player mode and the computer is defeated, you must punch or kick rocks that come floating towards you before progressing to the next level.

The sprites are large, and move quickly, but don't really do justice to the Amiga's graphic capabilities, and are a little lacking in detail. The backgrounds are nothing amazing but sufficient.

Some pleasant music plays at the beginning of the game, with a realistic, if repetitive smack as you hit your opponent.

Despite its total lack of originality, Karate King is fun to play, but I can see its appeal wearing thin before long but for Amiga users who have not exhausted their aggression on other computers, this could provide a great deal of fun.

Phalanx

Phalanx isn't the sort of game you dream of playing on your Amiga. In fact, it could almost be on a 64. The game is simple: move your ship around the bottom of the screen dodging enemy ships and their fire, whilst doing your best to shoot them all. Shoot all the aliens and you get to the next level. Each level has a random choice of aliens and attack pattern. The action takes place over a static background of stars, with score and status in a panel on the right. A column of dots on the left of the screen represents the current level.

The title sequence is impressive. Both the music and graphic effects are also very professional. Unfortunately the game doesn't come up to the same standard. The sound effects are good, but the sprites tend to move jerkily and flicker a little.

There's not much else that can be said about this game. It's just a straight forward Galaxians/Moon Cresta style shoot 'em up.

Demolition

Anco have jumped on the Arkanoid bandwagon with Demolition.

The idea of the game is to destroy all the bricks by bouncing a ball on to them. You control a bat of variable size which moves left and right along the bottom of the screen. The ball starts at the bottom and floats up to the rows of bricks at the top. To keep the ball going you must position the bat so that the ball bounces off it and back up again.

Your bat is armed with a permanent laser which cannot shoot the bricks, but is used for the various aliens that come across the screen. When shot, some give points, and some turn into a second ball to keep up.

On the whole, the graphics are simple, but some of the scrolling backgrounds are interesting. The sound effects are up to Anco's usual standard.

Although cheaper than most Amiga games, I think this is another case of a computer's capabilities not fully used on such a simple game. However, if you're an Arkanoid fan, and don't already own a similar game, Demolition is well worth considering.

Space Battle

If you had to name some of the oldest arcade games you could remember, I should think Asteroids would be one that would spring to mind. Now, if I asked you to name the most advanced home computer around, I can bet the answer 'Amiga'. Why then, have Anco chosen Asteroids to copy onto this new mega-computer? Search me!

Well, that's just what they've done. Space Battle is no more than Asteroids with very minor trimmings. I don't think there can be many Amiga gamesters who never played Asteroids, but for the few who didn't, it goes like this . . . You control a small spaceship not unlike the Star Trek logo, and fly around in space blasting asteroids floating in space. The control of the ship is different from the usual up, down, left and right method,and is by thrusting and rotating. This makes controlling the ship harder, but gives greater accuracy with speed and direction. The asteroids start off fairly large, and split into smaller rocks when shot. Now and again a space ship comes along that can be shot for extra points. When all the asteroids have been shot, a load more appear and the game continues as before.

Space Battle has a typically 'smooth' title sequence, but as with their other games, the graphics are small and not what the Amiga was made for. Fortunately, there are some excellent sound effects, and an evil laugh at the end.

If you're not a games player by nature, you may find Space Battle worth your while, but those of you with experience in this field will want something more from their Amiga.

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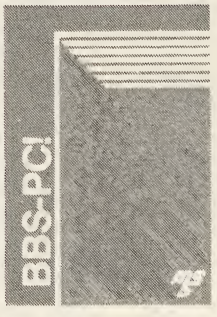

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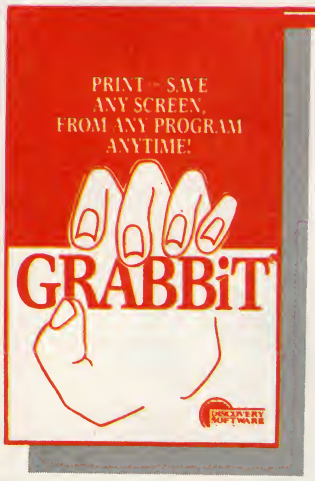

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Commodore make tape units to a specific specification. Unfortunately, when the specification was developed some years ago things like turbo loaders were not on the market. Many people now find that some new fast loader tape won't load on their machine but may work on another.

In practice one does not have much recourse with either the retailer or Commodore. The software house that put the fast load code on the tape didn't stick to the Commodore specifications and most fast loaders require that the drive must be aligned and the heads manufactured to a much higher standard than the quality control standards call for.

If someone experiences such problems they could try a head alignment tape utility and cleaning the head. But be careful about the alignment.

If your head was on the verge of going out of alignment for some reason and you realign it then your old tapes may now have loading problems.

The simple test program which Commodore uses to check if its tape drives meet spec is listed below. Type it in and RUN it with your tape drive connected.

```
100 rem******tape drive test program*****
110 save"test program",1                :rem save prog tape
120 print"please rewind the tape"       :rem ask for rewind
130 print"then press the space bar"
140 get a$:if a$<>"" then goto 140      :rem wait for space bar
150 verify"test program",1              :rem verify saved program
160 aa=st                               :rem store verify status
170 print aa,                           :rem prints status
180 print"test complete";               :rem should be zero
190 if aa=0 then print"ok"              :rem ok if status =0
200 if aa<>0 then print "failed"        :rem failed if not 0
210 end
```

Jim Kennedy
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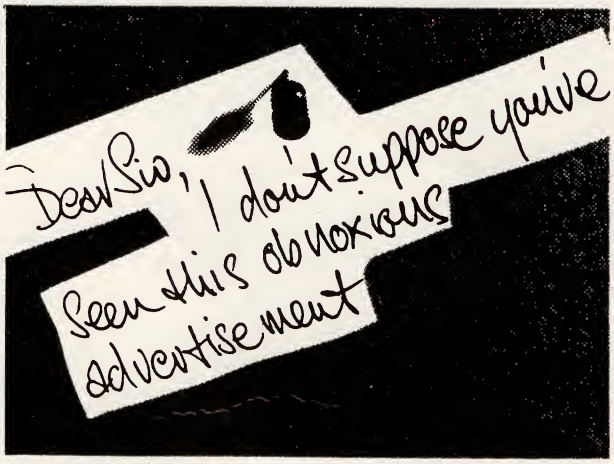

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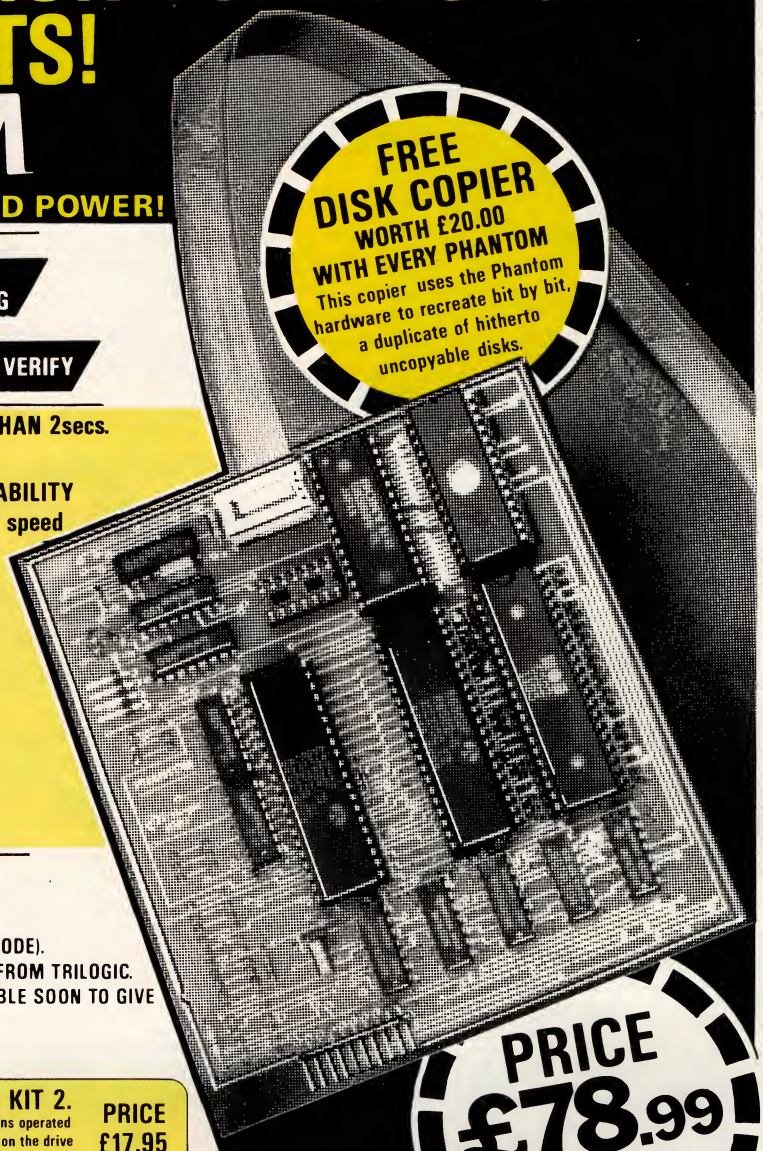

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To start using the network one also needs an account with Compunet. The relevant application forms are supplied with the modem and sending them off soon results in the supplying of a I.D. and password.

Compunet can be accessed from about sixty-five telephone numbers around the U.K., meaning that phone calls will be at the local or 'a' rate for most users. With the modem plugged in typing 'CONNECT' causes a prompt for a telephone number to appear. The nearest Compunet access number is then entered and the modem dials it. After a few moments a welcome message appears, not from Compunet itself, but from the Istel node that has been dialled.

The Compunet phone numbers are actually those of the Istel Network which, in turn, communicates with Compunet's mainframe in London. Users pay only the normal B.T. charge to contact the Istel node plus 60p an hour to cover the cost of Istel transmitting their data on to Compunet.

On a users first access of Compunet the network downloads the latest communications software to the users Computer. This process, known as 'Linking' takes a few minutes but the code can then be saved to disk or tape and loaded before the next session.

There are a variety of communications programs available on Compunet for use with the Commodore Modem, some are free and others cost a few pounds. ASCII and Viewdata terminal programs allow access to other systems such as Prestel, CIX and the bulletin boards that abound. There are programs to allow communications with other users of the Commodore Modem and there is a number of 'on-line' utilities that enhance the Compunet software.

Currently Compunet are running a 'Free Modem Offer'. If a new user is prepared to subscribe to Compunet for a year then Compunet will give them a Commodore Modem free on receipt of their first quarters 'Gold' subscription (£15) plus the cost of postage and packing.

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Thanks for the Memory

Peter Gerrard, CCI's inveterate interrupter, has been uninterrupted long enough to start to remember... Memories, he seems to think, not only as Barbra Streisand would say, light the corners of your mind but also exist in odd places on computers.

Within the confines of the Commodore 64 we have got bags of memory lurking about all over the place. From $000 to $03FF we have a collection of little itsy-bitsy things that are vaguely vital to the workings of the machine, then from $0400 to $07FF we have the screen memory and the sprite data pointers. Basic then weighs in with its elephantine (speed as well as size) 38 and a bit K from $0800 to $9FFF, followed by a little bit of ROM from $A000 to $BFFF. $C000 to $CFFF, however, is ours (hurrah hurrah) and provides a vital workspace of 4K in which we can put all manner of interesting bits and pieces. From $D000 to $FFFF we're back in the land of ROM again, apart from a few diversions such as the area beginning at $D000 for a spot of graphics, $D400 for a musical diversion, and $D800 for the screen's colour memory. All very interesting, but in one vital area sadly lacking in information.

Suppose we wanted to write a routine (this is the hint, folks) that would look at all the colour on the screen, find any bit that was coloured in red and change it immediately to yellow, for example. Or find everything that was black and change it to orange. Or any other combination of colours, all activated by the simple command:

SYS 49152,A,B

where A was the colour to look for and B was the colour to change it to. Thus SYS 49152,0,1 would look for every occurrence of something black and change it to something white. A routine that could have quite a few applications in the games world, and coupled with something else that we'll be coming to later (jus animated User Defined Graphics) could quite seriously turn into something very useful indeed.

A simple routine, you might say. Why, one could almost do it in Basic. Like this:

```
5 INPUT "From, to ";A,B
10 FOR I=55296 TO 56295:IF PEEK
(I)□A THEN POKE I,B
15 NEXT I
```

Wrong. It will not work. Don't believe me? Well, run this program and see, or just enter **FORI□0TO39: PRINTPEEK(55296+I); :NEXT** and see what you get. A pretty random selection of numbers, in fact. Try running it again, and you'll see that the numbers will change. That's right, although we can quite happily POKE to colour memory and alter it that way, we cannot PEEK it. It's what is termed *Write-Only* memory, or WOM I suppose. You might say that it's a RAM without a view.

So, we have to think of another way around this little problem, and the simplest solution, as so often is the case, is the one to go for. If we can't see what's stored in colour memory by PEEKing it, why not have an alternate colour memory that we *can* both POKE and PEEK, alter that at will, then when it comes to actually changing the colour memory we look to our alternate memory for what is supposed to be there, read it from the alternate memory, and write it to the 'real' colour memory. Confused? You won't be, after you've read this month's article... why was I tempted to write 'SOAP' there, I wonder?!

As ever, let us consider the nature of the program before we set about writing it. Very few good, workable programs are written just by sitting down at the keyboard and charging on in there. It is far better to think about it first, perhaps jotting down a few notes, and then, only when we have an idea of exactly what we're trying to achieve, should we get out the old assemblers and start having a go.

Program Problems

1) We want to be able to write a routine that will accept an input of two numbers from the user.
2) We want to store those two numbers in such a way as to be able to recall them when required.
3) We need to be able to search through colour memory for every occurrence of a specified colour.
4) We need to be able to alter every occurrence of that colour into another, specified, colour.

We'll worry about the animated UDGs later, since they're just the icing on the cake really, and anyway they're running under interrupt control and if you don't know how that works by now you probably never will do. For now, let's address ourselves to the four problems presented above, in order.

Machine code inputs

Tucked away in the 64's ROM routines are many, many subroutines that we can use in our own programs. One such is the one that gets an input from the player, and used properly we can input as many

numbers as we feel like. The routine used in this example resides at $B7EE, and so to get two numbers tucked away into the relatively safe locations of $57 and $58 all we need is something like:

JSR $B7EE
STX $57
JSR $B7EE
STX $58
RTS

which sorts out our problem for us.

We can now use the syntax SYS 49152,A,B, provided of course that the little piece of code quoted above sits in the correct part of memory. The following listing does that job for us.

```
'LOADER1'

5 Print chr$(14)
10 a=0:fori=49152to49268
12 readb:Pokei,b:a=a+b
14 nexti
16 ifa<>18913 then Print"Data error block #1":end
17 Print "Block #1 entered correctly."
18 a=0:fori=52208to52273
20 readb:Pokei,b:a=a+b
22 nexti
24 ifa<>10886thenPrint"Data error block #2":end
26 Print"All Present and correct : TESTING Prog. now in Place."
200 data 032,238,183,134,087,032,238,183,134,088
205 data 162,000,189,000,200,197,087,240,061,232
210 data 224,250,208,244,234,234,234,162,000,189
215 data 250,200,197,087,240,053,232,224,250,208
220 data 244,162,000,189,244,201,197,087,240,048
225 data 232,224,250,208,244,162,000,189,238,202
230 data 197,087,240,043,232,224,250,208,244,032
235 data 000,204,096,234,234,234,234,234,234,234
240 data 164,088,152,157,000,200,076,019,192,164
245 data 088,152,157,250,200,076,036,192,164,088
250 data 152,157,244,201,076,050,192,164,088,152
255 data 157,238,202,076,064,192,000
300 data 000,200,250,200,244,201,238,202,000,216
305 data 250,216,244,217,238,216,160,000,185,240
310 data 203,141,035,204,185,241,203,141,036,204
315 data 185,248,203,141,038,204,185,249,203,141
320 data 039,204,200,200,192,010,240,016,162,000
325 data 189,000,216,157,160,000,232,224,250,208
330 data 245,076,002,204,096,255
```

Needless to say all of this does a little bit more than getting two numbers. Also in there is a table of values used in checking and altering the colour memory and our alternate memory area, as well as the code itself.

Searching and altering

In order to search through and selectively alter the colour memory, we need to set up an alternate colour memory as well as the real thing, so that the two coincide exactly. The following Basic demonstration program, to be run *only* after entering the LOADER1 program, does that for us. It also, incidentally, lets us see the routine in operation.

Here, lines 5 to 80 clear the screen, set the background and

```
'DEMO1'

5 PRINT CHR$(147):
10 POKE 53281,0
20 POKE 53280,0
30 FOR I=0 TO 999
40 POKE 1024+I,160
50 A=INT(RND(.5)*16)
60 POKE 55296+I,A
70 POKE 51200+I,A
80 NEXT
90 A=0:B=0
100 GETA$:IFA$="" THEN 100
105 IF A$=CHR$(133)AND A=15 THEN A=0:GOTO 130:REM F1
110 IF A$=CHR$(133)THEN A=A+1:GOTO 130:REM F1
115 IF A$=CHR$(136)AND B=15 THEN B=0:GOTO 130:REM F7
120 IF A$=CHR$(136)THEN B=B+1:GOTO 130:REM F7
125 GOTO 100
130 SYS 49152,A,B
135 GOTO 100
```

border colours, and then put a random collection of coloured spaces on the screen, putting the information for the colour into both our colour memory areas: the real one and the alternate one.

The, lines 90 to 135 allow you to tap either F1 or F7 to change the A and the B parameters in our SYS call respectively, and doing so will let you see how the routine operates. Not a spectacular demonstration, because you'll probably end up with everything being exactly the same colour before too long, in which case you might as well just POKE 53281 with something and be done with it, so for something a little more interesting we must proceed onwards via a short diversion and a look at those animated user defined graphic characters.

User defined graphics

Ever since the Commodore 64 appeared people have been mucking about with UGDs, and a thousand and one programs must have been written to aid you in producing your own characters. The data I've used was produced by the use of one such program of my own, and the method used for reading in the character data from ROM and putting it into RAM so that it can be altered is as old as the hills, so I won't waste too much time by rabbiting on about how it works. Just enter the following program, but please *do not* run it yet.

Finally for this program line 30000 onwards contains the data for the user defined graphics.

```
'DEMO2'

1 IFPEEK(49279)<>240THENLOAD"ANIMATOR ",1,1:GOTO1
2 FORI=1TO12:CD$=CD$+CHR$(17):NEXT
5 PRINT CHR$(147);
10 POKE 53281,0:POKE 53280,0
20 A=12288:B=53248
25 POKE 56334,0:POKE 1,51
30 FOR I=0 TO 512:POKE A+I,PEEK(B+I)
35 NEXT I
40 POKE 1,55:POKE 56334,1
45 FOR I=0TO31:READB:POKE A+520+I,B:NEXT
50 POKE 53272,(PEEK(53272)AND240)+12
55 PRINT CHR$(19)CD$"TAB(12)"":REM LIGHT GREEN/16 SHIFTED A'S
60 A=1:B=0
62 FOR I=0 TO 39-B
64 POKE 1024+I+B*20.5,65:POKE 55296+I+B*20.5,A:POKE 51200+I+B*20.5,A
66 POKE 1984+I-B*19.5,65:POKE 56256+I-B*19.5,A:POKE 52160+I-B*19.5,A
68 NEXT
70 FOR I=1 TO 23-B
72 POKE 1024+I*40+B*20.5,65:POKE 55296+I*40+B*20.5,A:POKE 51200+I*40+B*20.5,A
74 POKE 1063+I*40+B*19.5,65:POKE 55335+I*40+B*19.5,A:POKE 51239+I*40+B*19.5,A
76 NEXT
78 A=A+1:B=B+2:IF B<24 THEN 62
79 SYS 49280
80 REM
81 FOR I=1 TO 13
82 SYS 49152,I,I-1
83 NEXT
84 SYS 49152,0,13
87 GETA$:IFA$=""THEN80
88 GOTO92
90 FORI=0TO13:POKE 1024+I,160:POKE 55296+I,1:POKE 51200+I,1:NEXT:END
92 SYS 49152,13,0
93 FOR I=12 TO 1 STEP-1
94 SYS 49152,I,I+1
95 NEXT:SYS 49152,0,1
96 GETA$:IFA$=""THEN92
98 GOTO80
30000 DATA192,240,176,143,143,176,240,192
30001 DATA255,195,102,102,24,24,24,24
30002 DATA3,15,13,241,241,13,15,3
30003 DATA24,24,24,24,102,102,195,255
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```
'LOADER2'
10 printchr$(14)
20 a=0:fori=49279to49367
22 readb:pokei,b:a=a+b
24 nexti
26 ifa<>11204thenPrint"Data entered correctly.":end
28 Print"Animator Program now in Place: well done.":end
200 data 240,162,000,189,008,050,157,040,050,232
205 data 224,008,208,245,169,192,141,020,003,169
210 data 192,141,021,003,096,234,004,172,153,192
215 data 200,192,005,208,005,160,001,140,153,192
220 data 140,153,192,152,010,010,010,170,160,000
225 data 189,008,050,153,008,050,232,200,192,008
230 data 208,244,076,049,234,174,214,192,232,142
235 data 214,192,224,032,208,008,162,000,142,214
240 data 192,076,154,192,076,049,234,012,000
```

UDG routine

This is the program which, in its machine code saved form, I chose to call ANIMATOR. It takes four different UDGs entered and used in the manner of the demonstration program, and just swops from one to another. The speed of swopping is selected by altering the content of register 49352, which is currently set to 32. Anything faster will probably make you seasick, but feel free to experiment on your enemies.

By using somewhat different UDGs you could probably get some fascinating displays out of all this, especially with the ability to alter the colours as well, but here I just settled on something which showed the technique rather than attempting to produce a blockbusting arcade game. This could be something to do with the fact that Countdown is on television in about fifteen minutes.

For those of you interested in such things, some technical facts about the machine code programs. The Basic ones you can probably disect for yourself, but as a pointer to the machine code parts, here we go:

LOADER1, when run, puts code in memory in four distinct parts, as follows:

1) $C000-$C074. This is the code for inputting the colours, checking where they are on the screen and altering the content of our alternate colour memory.

2) $C800-$CBE9. This is that alternate colour memory area.

3) $CBF0-$CBFF. The tables that tell the program where to store its information.

4) $CC00-$CC31. This part does all the hard work and updates the real colour memory when we're satisfied that all the different occurrences of our specified colours have been trapped.

LOADER2, when run, puts code in memory in just one part.

1) $C07F-$C0D7. This does all the work of animating our user defined graphics, by continually putting the data for each of the four characters into the area in which the first character would normally get its data from. The result is that the first character is continually changing from 1 character to another, giving the impression of a rotating blob on the screen.

We won't be running this just yet because we need another machine code routine in the $C000-$CFFF block before we can do so. Save it to tape or disk, and we can safely have a look at what it does and how it does it.

First of all, line 1 checks to see if the animator program is resident in memory. If it isn't then the program makes damn sure that it is, so if you're using tape make sure that ANIMATOR (which is the name I gave to the machine code file produced by running LOADER2 which we'll get to in a moment so be patient) is the program after this one, but if you're using disk then just change the ",1,1" to a ",8,1" and then it doesn't matter where you store the thing, as long as its on the disk somewhere.

Line 5 simply clears the screen, while lines 10 to 40 set the 64 up for our new user defined characters. Nothing of any great interest here, the usual techniques are employed because they work and you can't really improve on anything that works and works well. Line 45 reads in the daa for our 4 new characters before line 50 switches in the new character set and allows these new chaps to be displayed. They are, if you want to play, shifted A, shifted B, shifted C and shifted D respectively, and are meant to be four different views of a rocket. However, intricate detail is a bit tricky on an 8 by 8 matrix and so you'll have to settle for a blob with a bit sticking out of it.

Lines 55 to 76 then set up our screen display, which consists of hundreds of these rockets (or blobs) drawn in lots of different colours. You'll have to be patient while it's all drawn up, because it does take quite some time. Go and have a cigarette, or a drink or something while it does all this.

Line 79 then performs the great task of turning on interrupts, before we get to the fun and games of our colour changing routine once more. Line 80 to 88 change the colours in one particular way, waiting all the while for a key press to take you into another part of the program. This is kept in lines 92 and 98 (don't worry about line 90, since it does nothing and is only left in because it was something I was using to test a part of the program and subsequently forgot to remove), which alter colours in a different way. These in their turn are also waiting for a key press to take you back to the first part again. To get out of the program I suggest a RUN/STOP and RESTORE. Somewhat drastic perhaps, but it does set the graphics back to normal and sorts out the interrupts for us.

That's probably all you need to know in order to use the routines in your own programs. Just remember that ANIMATOR sets up interrupts, so you'll have to turn those off in your own programs, and that LOADER1 (which hasn't really got a name so we'll called it COLOUR-SWOP) requires an input of the form SYS 49152,A,B. Don't forget that comma after the 49152, and no you can't have values of A or B greater than 255, as you'll soon find out if you try and enter them.

Conclusion

Two routines then that should help you in your quest to write the ultimate Commodore 64 arcade game. The colour swop one is probably the most useful of the two, although animated UDGs can be used to great effect with a little bit of care and thought. □

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PROCEDURES V PROGRAMS

Richard G. Hunt

The Plus/4 owners frequently complain about the problem of saving onto reading from cassette. Richard Hunt, an expert in the Plus/4 has produced a solution to this problem that is quick and trouble free.

The Plus/4 is equipped with a small wordprocessor. That for many may be the first example of a wordprocessor unknown reason the 3+1 WP has no in-built commands to enable users to save and read from cassette. This article provides a remedy for that and for more advanced wordprocessor users also provides a program that will convert files created on SCRIPT/PLUS which is an altogether more sophisticated package to readable format for the 3 +1 WP. That means you can send "electronic mail" to your Plus/4 friends without the need to use paper!

The method used for writing 3+1 WP tape files is a set of procedures as follows. The 3+1 WP stores its text in high RAM starting at around $C12C for a maximum of 77*99 bytes (99 rows of 77 columns). Knowing this enables the cunning to save to tape that area of memory as a program file, using the built in monitor (Tedmon):

1. First enter 3+1 WP and create the text. When ready to save, move to the spreadsheet by entering the command TC (on the command line, of course).

2. Reset the Plus/4 from the spreadsheet by pressing the reset button and simultaneously holding down the RUN/STOP key. This both retains the 3+1 environment and drops the machine into the Tedmon monitor. The area of RAM in which we are interested remains unaffected.

3. Ensure high RAM can be read by Tedmon by writing #$80 at location $07F8. This is best achieved by displaying memory at $07F8 with the M command (M07F8 <return>), and

```
1 REM *** PLUS 4 CONVERTER PROGRAM
2 REM *** BY RICHARD G HUNT
3 REM *** TO CONVERT PLUS 4 SCRIPT PLUS
4 REM *** OR ASCII FILES TO SCREEN
5 REM *** FORMAT FOR 3+1 WP
6 POKE 56,160:CLR
9 PRINT CHR$(14)
10 INPUT "FILE NAME";F$
20 INPUT "FILE TYPE";T$
30 T$=LEFT$(T$,1)
40 IF T$<>"S" THEN IF T$<>"P"THEN IF T$<>"U" THEN20
45 OPEN 15,8,15
50 OPEN 5,8,5,"0:"+F$+","+T$+",R"
60 GOSUB200
65 AD = 49452
70 GET#5,A$
80 IF ST<>0 THEN PRINT: CLOSE15: CLOSE5: PRINT CHR$(14+128): PRINT "END
OF FILE": GOTO 110
85 S$=A$+CHR$(0): S=ASC(S$)
90 POKE AD,S: AD = AD+1 : IF S = 65 THEN PRINT".";
100 GOTO 70
110 PRINT CHR$(14+128): PRINT "DONE READING..."
120 PRINT "NOW CONVERTING..."
125 BD = 49452 : AD = AD-BD
130 IF (AD-BD) > (99*77) THEN AD = (99*77) : REM LIMIT OF 3+1
140 FOR J= 1 TO AD
150 S = PEEK(BD) : GOSUB 600 : IF S=1 THEN PRINT ".";
160 POKE BD,S : BD = BD+1
170 NEXT J
180 PRINT: PRINT "CONVERSION DONE...": PRINT "ENTER MONITOR AND SAVE"
```

by overtyping the first byte displayed with 80 (and don't forget to press <return>!).

4. Check memory at $C100 (again using the M command). Remember that the 3+1 WP uses CBM screen codes not ASCII so the hex and ASCII dumps will be meaningless unless you have deliberately placed a number at the beginning of text, e.g. a margin setting, which will be recognisable. Find the end of text in the same manner by dumping memory. The change from text to unused memory should be obvious. Otherwise take the end address as the maximum possible number of bytes: $DEF3 should be sufficient. Note down the end address and add one byte to it for good measure (and because the SAVE command requires the extra byte!).

5. Save the desired area of memory thus: S,"PROGNAME",!,C12C,NNNN <return> — where NNNN is DEF3 or the end address found in 4. above.

6. Exit the monitor by typing the X command and press <return> TWICE. This will drop you back in the spreadsheet, whence a simple command TW will return you to the WP for further word processing.

The process can be reversed for loading from tape thus:

1. Enter the 3+1 WP as normal and go to the spreadsheet as in 1. above.

2. Reset as in 2. above.

3. Carry out procedure 3. above, if necessary.

4. Load the file from tape thus: L"PROGNAME" <return>

5. Return to the WP as in 6. above and the text should be visible for editing, printing etc.

Procedures cannot do everything so occasionally I find it necessary to write a program in BASIC. The one that follows converts an ASCII file such as created by SCRIPT/PLUS to screen code format as used by the 3+1 WP.

The program begins by reading a file off disk. This part of the program is based on the sequential file reader in the 1541 user's manual. The bytes read in are placed in memory at the desired location, $C12C et seq. Having read the file, it converts the ASCII bytes to screen code bytes. It is then a simple matter to enter the monitor and save the area of memory as a program file. I have even appended a routine that will convert the end address of the text to a hex number so that no memory search is required. Having saved the file, the 3+1 WP may be entered and exited as described in the procedures for loading from tape above. The file is then loaded, and a return made to the WP, at which point the converted text is visible and furthermore may be saved by the WP itself.

The program is very simple (and slow). Therefore there is a fair amount of editing to do on the converted text. No doubt some of it could be programmed in, but I consider that the largest document size doesn't warrant the extra effort.

I hope that in describing how to do two things with the Plus/4 that are not in the handbooks its positive features may be enhanced a little. For all the wants of available software, the Plus/4 itself gives more value that is at first glance to hand.

RH

```
100 GOSUB 1000 : POKE56,253: CLR: END

200 REM FILE NAME ERROR TRAP

210 INPUT#15,A$,B$,C$,D$

220 IF VAL(A$)>0 THEN PRINT A$;B$;C$;D$:CLOSE 15: CLOSE5: STOP

230 RETURN

500 REM CONVERT ASCII TO SCREEN

525 IF S  < 32 THEN GOSUB 700:RETURN

530 IF S => 32 AND S <  64 THEN  RETURN

540 IF S  > 63 AND S <  96 THEN S=S-64: RETURN

550 IF S  > 95 AND S < 128 THEN S=S-32: RETURN

560 IF S => 128 THEN S=S AND 127: GOTO525

700 REM CR = 13 SCRIPT+, 158 IN 3+1 WP

710 IF S=13 THEN S= 158

720 RETURN

1000 REM CALCULATION OF HEX END ADDRESS

1005 H1=0:H2=0:H3=0:H4=0:H1$="":H2$="":H3$="":H4$="":H$=""

1010 BD=ED+1

1020 H1=INT(BD/4096) : BD = BD - H1*4096

1030 H2=INT(BD/256)  : BD = BD - H2*256

1040 H3=INT(BD/16)   : BD = BD - H3*16

1045 H4=BD

1046 PRINT H1;H2;H3;H4

1049 RESTORE

1050 FOR J = 0 TO H1: READ H$: H1$= H$: NEXT:RESTORE

1060 FOR J = 0 TO H2: READ H$: H2$= H$: NEXT:RESTORE

1070 FOR J = 0 TO H3: READ H$: H3$= H$: NEXT:RESTORE

1080 FOR J = 0 TO H4: READ H$: H4$= H$: NEXT

1090 PRINT" START ADDRESS = $C12C"

1095 PRINT" END ADDRESS   = $"H1$+H2$+H3$+H4$

1099 POKE2040,128

1100 DATA "0","1","2","3","4","5","6","7","8","9"

1110 DATA "A","B","C","D","E","F"

1200 RETURN

READY.
```

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SCROLLING BANNER

C-64

by
Richard Franklin

This routine is written by star programmer Richard (Mini Office) Franklin to smooth scroll a message across the bottom of the screen. It comes complete with an annotated assembler listing to enable all those budding machine code programmers to see how the professionals do it.

This routine smooth scrolls a text message across the bottom line of the screen from right to left and repeats at the end.

Out of necessity I had to write a smooth scrolling message routine for a Mikrolink demo at the recent Commodore show. I decided that it would be the sort of routine appreciated by the readers of CCI so I wrote it with you in mind.

This is the result of that days work. The routine was written using the MIKRO assembler and resides in the memory block at $C000. It is wedged into the IRQ handler routine via the vector at $0314 and uses raster interrupts.

To make the routine as widely usable as possible, I decided to make it as near transparent to any foreground program as possible. This I was able to do with just two exceptions:

1. The time variable TI (and subsequently TI$) run at 50 increments per second as opposed to the normal 60 (therefore running a bit slow).
2. Input on the bottom line (hidden by the banner) will be corrupted by the banner itself.

Apart from these two limitations, the routine is completely transparent. All zero page variables used are saved away before using them and are restored at the end. Any text on the bottom line of the screen is also saved away and restored after. This means that you will be able to list a program to the screen and it will be displayed properly (on 24 lines).

Any text printed to the bottom line of the screen will not appear as it will be hidden by the banner but when the screen is scrolled up, the text will appear. This is done by storing away the bottom line and its colour into a temporary storage buffer, putting the banner message and colour onto the line, and restoring things to the way they were afterwards.

The routine is not a very good example of a raster IRQ because there is only one split point down the screen. Usually you would have at least two so that the changes made at one point can be restored at another. The reason that this uses just one split is that I implemented the keyboard scan inside my code and restored to normal after the scan. The keyboard scan will always finish somewhere in the bottom border of the screen and I then restore the Background colour and smooth scroll position.

The banner message may be any length and in any part of the 64K RAM. This means you can put the message behind either of the ROMs or behind the I/O area. Other parameters for the banner are:

1. Foreground — colour — a value (0-15) for the colour of the text.
2. Background colour — a value (0-15) for the colour of the background.
3. Speed — a value (1, 2, 4 or 8) for the speed of the scrolling. 1 being the slowest, 8 being the fastest.

I considered including a variable for whether the text should appear reversed but realised that to get reversed, just swap the background and foreground colours. The speed variable specifies the number of pixels to move the text per 50th of a second.

The text itself is in Commodore ASCII form and is converted to screen poke values prior to being displayed. All print control characters are converted to spaces.

When the routine reaches the end of the text, forty spaces are displayed before the text starts from the beginning again.

There are four entry points into the code that do different things:

49152 ($C000) — Entry for a SYS call from BASIC.
e.g. SYS 49152, start address, length, foreground, bakcground, speed.

49221 ($C045) — Entry from machine code with variables START, LENGTH, FGRND, BACK, and SPEED already set up.

49270 ($C076) — Restart the routine. Will restart a message stopped by the next entry point.

49329 ($C0B1) — Suspend/stop the routine. Will restore the normal IRQ operation and bottom line display.

Note: You should always turn the routine off when accessing the disk drive or tape system and restart it afterwards.

Program

```
1 PRINTCHR$(147)"   SMOOTH SCROLLING MESSAGE ROUTINE."
2 PRINT:PRINT"          BY RICHARD FRANKLIN"
3 PRINT:PRINT:PRINT"  PLEASE WAIT WHILE COPYING DATA INTO"
4 PRINT:PRINT"                 MEMORY."
10 L= 49152
20 FOR X=0 TO  37 :T=0:FOR Y=0 TO 14
30 READ A:IF A <0 OR A >255 THEN 60
40 POKE L,A:L=L+1:T=T+A:NEXT
50 READ A:T=T-(INT(T/256)*256)
60 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
70 PRINT 1000+(X*10)"OK":NEXT
80 A$="ROUTINE NOW LOADED: USE SYS(49152),START,LENGTH+1,FORE,BACK,SPEED"
90 A$=A$+" TO USE, SYS(49329) TO STOP, SYS(49270) TO RE-START."
100 FOR I=1 TO LEN(A$):POKE 40960+I,ASC(MID$(A$,I,1)):NEXT
110 SYS(49152),40961,LEN(A$)+1,0,1,2
120 LIST
1000 DATA 032,253,174,032,138,173,032,247,183,165,020,141,166,192,165, 065
1010 DATA 021,141,167,192,032,253,174,032,235,183,142,170,192,165,020, 071
1020 DATA 141,168,192,165,021,141,169,192,032,241,183,142,171,192,032, 134
1030 DATA 241,183,224,008,240,015,224,004,240,011,224,002,240,007,224, 039
1040 DATA 001,240,003,076,072,178,142,172,192,173,166,192,024,109,168, 116
1050 DATA 192,141,168,192,173,167,192,109,169,192,141,169,192,169,000, 062
1060 DATA 141,173,192,141,174,192,173,166,192,141,175,192,173,167,192, 024
1070 DATA 141,176,192,160,039,169,032,153,056,194,136,016,250,120,173, 215
1080 DATA 017,208,041,127,141,017,208,169,210,141,018,208,173,026,208, 120
1090 DATA 009,001,141,026,208,169,031,141,013,220,141,013,221,173,013, 240
1100 DATA 220,173,013,221,169,248,141,020,003,169,192,141,021,003,088, 030
1110 DATA 096,000,000,000,000,000,000,000,000,000,000,000,120,173,026, 159
1120 DATA 208,041,254,141,026,208,169,129,141,013,220,169,049,141,020, 137
1130 DATA 003,169,234,141,021,003,088,096,201,032,144,027,201,064,144, 032
1140 DATA 036,201,096,144,025,201,128,144,025,201,160,144,011,201,192, 117
1150 DATA 144,013,201,255,144,006,169,094,096,169,032,096,041,127,096, 147
1160 DATA 056,233,064,096,056,233,032,096,165,251,072,165,252,072,165, 216
1170 DATA 253,072,165,254,072,173,136,002,024,105,003,133,252,169,192, 213
1180 DATA 133,251,160,039,177,251,153,096,194,185,056,194,145,251,185, 166
1190 DATA 192,219,153,136,194,173,170,192,153,192,219,136,016,231,173, 245
1200 DATA 033,208,072,172,171,192,173,022,208,072,041,248,013,173,192, 198
1210 DATA 170,169,243,205,018,208,208,251,142,022,208,140,033,208,173, 094
1220 DATA 173,192,208,005,032,211,193,169,008,056,237,172,192,141,173, 114
1230 DATA 192,032,234,255,165,204,208,041,198,205,208,037,169,020,133, 253
1240 DATA 205,164,211,070,207,174,135,002,177,209,176,017,230,207,133, 013
1250 DATA 206,032,036,234,177,243,141,135,002,174,134,002,165,206,073, 168
1260 DATA 128,032,028,234,165,001,041,016,240,010,160,000,132,192,165, 008
1270 DATA 001,009,032,208,008,165,192,208,006,165,001,041,031,133,001, 177
1280 DATA 032,135,234,160,039,185,096,194,145,251,185,136,194,153,192, 027
1290 DATA 219,136,016,242,104,141,022,208,104,141,033,208,104,133,254, 017
1300 DATA 104,133,253,104,133,252,104,133,251,169,001,141,025,208,076, 039
1310 DATA 129,234,160,000,185,057,194,153,056,194,200,192,039,208,245, 198
1320 DATA 169,032,141,095,194,173,174,192,240,004,206,174,192,096,160, 194
1330 DATA 000,173,175,192,133,253,173,176,192,133,254,165,001,072,041, 085
1340 DATA 252,009,004,133,001,177,253,032,203,192,141,095,194,104,133, 131
1350 DATA 001,238,175,192,208,003,238,176,192,173,175,192,205,168,192, 224
1360 DATA 208,207,173,176,192,205,169,192,208,199,173,166,192,141,175, 216
1370 DATA 192,173,167,192,141,176,192,169,040,141,174,192,096,000,000, 253
```

Program

```
1000 !*********************************
1010 !*   SMOOTH SCROLLING BOTTOM LINE  *
1020 !*       MESSAGE FOR THE C64.      *
1030 !*---------------------------------*
1040 !*     WRITTEN BY R.P.FRANKLIN     *
1050 !*          17TH MAY 1987          *
1060 !*********************************
1070 !
1080 *=$C000 !START CODE AT $C000
1090 JSR $AEFD !SCAN PAST FIRST COMMA
1100 JSR $AD8A
1110 JSR $B7F7 !ADDRESS OF TEXT ($14)
1120 LDA $14
1130 STA START
1140 LDA $15
1150 STA START+1 !SAVE ADDRESS
1160 JSR $AEFD !SCAN PAST COMMA
1170 JSR $B7EB !LENGTH IN ($14)
1180 STX FGRND !FOREGROUND IN .X
1190 LDA $14
1200 STA LENGTH
1210 LDA $15
1220 STA LENGTH+1
1230 JSR $B7F1 !SCAN PAST COMMA AND
1240 STX BACK ! BACKGROUND IN .X
1250 JSR $B7F1 !SCAN PAST COMMA AND
1260 CPX #8 ! SPEED IN .X
1270 BEQ SPDOK !O.K.
1280 CPX #4
1290 BEQ SPDOK !O.K.
1300 CPX #2
1310 BEQ SPDOK !O.K.
1320 CPX #1
1330 BEQ SPDOK !O.K.
1340 JMP $B248 !ILLEGAL QUANTITY
1350 !
1360 SPDOK STX SPEED !SCROLL SPEED
1370 !
1380 ! PARAMETERS INPUT, NOW SET UP
1390 !
1400 SETUP LDA START
1410 CLC
1420 ADC LENGTH
1430 STA TEND
1440 LDA START+1
1450 ADC LENGTH+1
1460 STA TEND+1
1470 LDA #0
1480 STA SMOOTH !SMOOTH SCROLL POS.
1490 STA PADING !START BY READING
1500 LDA START
1510 STA POINT
1520 LDA START+1
1530 STA POINT+1 !POINTER TO NEXT BYTE
1540 LDY #39
1550 LDA #32
1560 CLEAR STA BOTTOM,Y !BLANK LINE
1570 DEY
1580 BPL CLEAR
1590 !
1600 ! SETUP COMPLETE, NOW INITIALISE
1610 ! THE RASTER IRQ
1620 !
1630 ! CAN ALSO BE CALLED TO RESTART
1640 ! AFTER SUSPEND/STOP
1650 !
1660 INIT SEI
1670 LDA $D011
1680 AND #$7F !CLEAR RASTER TOP BIT
1690 STA $D011
1700 LDA #210 !RASTER IRQ AT LINE 210
1710 STA $D012
1720 LDA $D01A
1730 ORA #1
1740 STA $D01A !ENABLE RASTER IRQ
1750 LDA #$1F
1760 STA $DC0D !DISABLE TIMER IRQ
1770 STA $DD0D ! AND ANY NMI
1780 LDA $DC0D
1790 LDA $DD0D
1800 LDA #<RASTER
1810 STA $0314
1820 LDA #>RASTER
1830 STA $0315 !SET UP IRQ VECTOR
1840 CLI
1850 RTS
1860 !
1870 START WOR 0 !START OF TEXT
1880 TEND =* !END OF TEXT
1890 LENGTH WOR 0 !LENGTH OF TEXT
1900 FGRND BYT 0 !FOREGROUND COLOUR
1910 BACK BYT 0 !BACKGROUND COLOUR
1920 SPEED BYT 0 !SCROLL SPEED
1930 SMOOTH BYT 0 !SMOOTH SCROLL VALUE
1940 PADING BYT 0 !# SPACES TO SHOW
1950 POINT WOR 0 !POINTER TO TEXT
1960 !
1970 ! SUSPEND OR STOP SCROLLING
1980 !
1990 SUSPND SEI
2000 LDA $D01A
2010 AND #%11111110
2020 STA $D01A !DISABLE RASTER IRQ
2030 LDA #$81
2040 STA $DC0D !ENABLE TIMER IRQ
2050 LDA #$31 !RESET IRQ VECTOR
2060 STA $0314
2070 LDA #$EA
2080 STA $0315
2090 CLI
2100 RTS
2110 !
2120 ! CONVERT THE CHARACTER IN .A
2130 ! FROM ASCII TO POKE VALUE
2140 !
2150 CNVERT CMP #32
2160 BCC MAKE32 !CONTROL CHAR = ' '
2170 CMP #64
2180 BCC CNVRET !LEAVE AS ARE
2190 CMP #96
2200 BCC CNV64 !MINUS 64
2210 CMP #128
2220 BCC CNV32 !MINUS 32
2230 CMP #160
2240 BCC MAKE32 !CONTROL CHAR = ' '
2250 CMP #192
2260 BCC CNV64 !MINUS 64
2270 CMP #255
2280 BCC CNV128 !MINUS 128
2290 LDA #94 !IF 255
2300 RTS
2310 !
2320 MAKE32 LDA #32
2330 RTS
2340 !
2350 CNV128 AND #%01111111
2360 RTS
2370 !
2380 CNV64 SEC
2390 SBC #64
2400 RTS
2410 !
2420 CNV32 SEC
2430 SBC #32
```

```
2440 CNVRET RTS
2450 !
2460 ! MAIN IRQ HANDLER
2470 !
2480 RASTER LDA $FB !SAVE 0 PAGE USED
2490 PHA
2500 LDA $FC
2510 PHA
2520 LDA $FD
2530 PHA
2540 LDA $FE
2550 PHA
2560 LDA $0288 !POINTER TO SCREEN MSB
2570 CLC
2580 ADC #3
2590 STA $FC
2600 LDA #$C0 !SCREEN LSB
2610 STA $FB
2620 LDY #39
2630 RASTLP LDA ($FB),Y !SAVE LINE
2640 STA CHRSAV,Y
2650 LDA BOTTOM,Y !STORE SCROLLING
2660 STA ($FB),Y
2670 LDA $DBC0,Y !SAVE COLOUR
2680 STA COLSAV,Y
2690 LDA FGRND !STORE SCROLL COLOUR
2700 STA $DBC0,Y
2710 DEY
2720 BPL RASTLP
2730 LDA $D021 !SAVE BACK COLOUR
2740 PHA
2750 LDY BACK
2760 LDA $D016 !SAVE SMOOTH SCROLL REG.
2770 PHA
2780 AND #%11111000
2790 ORA SMOOTH
2800 TAX
2810 LDA #243
2820 WAITLP CMP $D012 !WAIT FOR LINE 242
2830 BNE WAITLP
2840 STX $D016 !SET SMOOTH SCROLL
2850 STY $D021 !SET NEW BACK
2860 LDA SMOOTH
2870 BNE RAST00
2880 JSR HARDSC !SCROLL THE LINE PHYSICALLY
2890 LDA #8
2900 RAST00 SEC
2910 SBC SPEED !CALC. NEW SMOOTH POS.
2920 STA SMOOTH
2930 !
2940 ! NOW DEAL WITH THE NORMAL IRQ
2950 ! TAKEN DIRECTLY FROM THE KERNAL
2960 ! ROM
2970 !
2980 JSR $FFEA
2990 LDA $CC
3000 BNE L810
3010 DEC $CD
3020 BNE L810
3030 LDA #$14
3040 STA $CD
3050 LDY $D3
3060 LSR $CF
3070 LDX $0287
3080 LDA ($D1),Y
3090 BCS L745
3100 INC $CF
3110 STA $CE
3120 JSR $EA24
3130 LDA ($F3),Y
3140 STA $0287
3150 LDX $0286
3160 LDA $CE
3170 L745 EOR #$80
3180 JSR $EA1C
3190 L810 LDA $01
3200 AND #$10
3210 BEQ L809
3220 LDY #$00
3230 STY $C0
3240 LDA $01
3250 ORA #$20
3260 BNE L812
3270 !
3280 L809 LDA $C0
3290 BNE L813
3300 LDA $01
3310 AND #$1F
3320 L812 STA $01
3330 L813 JSR $EA87
3340 !
3350 ! RESET VALUES FOR DISPLAY
3360 !
3370 LDY #39
3380 RESLP LDA CHRSAV,Y
3390 STA ($FB),Y
3400 LDA COLSAV,Y
3410 STA $DBC0,Y
3420 DEY
3430 BPL RESLP
3440 PLA
3450 STA $D016
3460 PLA
3470 STA $D021
3480 PLA
3490 STA $FE
3500 PLA
3510 STA $FD
3520 PLA
3530 STA $FC
3540 PLA
3550 STA $FB
3560 LDA #$01
3570 STA $D019 !CLEAR IRQ FLAG
3580 JMP $EA81 !PULL REGS AND EXIT
3590 !
3600 ! HARD SCROLL SCREEN LINE
3610 !
3620 HARDSC LDY #0 !MOVE ALL CHARS 1
3630 HARDLP LDA BOTTOM+1,Y ! POS. TO THE
3640 STA BOTTOM,Y ! LEFT
3650 INY
3660 CPY #39
3670 BNE HARDLP
3680 LDA #32 !PUT SPACE IN LAST POS.
3690 STA BOTTOM+39
3700 LDA PADING !IF AT END OF LINE
3710 BEQ HARDFR ! LEAVE AS SPACE
3720 DEC PADING ! AND DEC. COUNT
3730 HARDEX RTS
3740 !
3750 HARDFR LDY #0
3760 LDA POINT
3770 STA $FD
3780 LDA POINT+1
3790 STA $FE
3800 LDA $01
3810 PHA
3820 AND #%11111100 !ENSURE ACCESSING RAM
3830 ORA #%00000100
3840 STA $01
3850 LDA ($FD),Y !GET CHAR
3860 JSR CNVERT !CONVERT TO SCREEN
3870 STA BOTTOM+39 !STORE IT
```

Program

```
3880 PLA
3890 STA $01
3900 INC POINT !INC. POINTER
3910 BNE HARD00
3920 INC POINT+1
3930 HARD00 LDA POINT
3940 CMP TEND
3950 BNE HARDEX
3960 LDA POINT+1
3970 CMP TEND+1
3980 BNE HARDEX
3990 LDA START !IF REACHED END, RESET
4000 STA POINT ! POINTER AND SEND 40
4010 LDA START+1 ! SPACES
4020 STA POINT+1
4030 LDA #40
4040 STA PADING
4050 RTS
4060 !
4070 BOTTOM =*
4080 *=*+40
4090 CHRSAV =*
4100 *=*+40
4110 COLSAV =*
4120 *=*+40
4130 !
```

Competitions

WIN! WIN! WIN!

How to Get the Most Out of Your Computer

Computer Power! That's what we all need. With a name like 'The Power House' the company that produces the new package 'How to Get the Mot Out of Your Computer' must have plenty to spare.

CCI reviewed their new utility package in the September issue. 'HTGTMOOYC' (phew!) has two different cassettes one is *Ultrakit*, which offers nearly 30 commands for Basic programming and Vidcom 64 a neat and imaginative graphics package.

Jo Meads, Power House's slick chick PR girl loves CCI's readers — all of them! — and wants to show her affection by giving 25 copies of 'How to Get the Most Out of Your Computer' to the first bright one who can answer these incredibly easy questions.

1. Who invented the first computer?
2. What is the difference between Basic and Machine Code?
3. What does the command 'old' mean?
4. What is a 'character designer' used for?
5. What is a toolkit (computer-style of course!)?

Answers on a postcard please to 'The I'd love Jo Meads to help me get the most out of my computer Comp! C/o CCI. Cards must reach us by November 15th. First 25 all correct cards get these terrific utilities.

Commodore Computing International
40 Bowling Green Lane, London EC1R 0NE

COMMENT

Welcome, heroes one and all, to another visit to Middle Earth where adventure is the name of the game, and fame and fortune is the prize. Talking of fame, this month heralds the biggest computer show of the year, the PCW show where most if not all of the software and hardware companies in this country parade all their latest products and give glimpses of new delights to come in the year following. On the adventure level, Level Nine will be there as usual (rumour has it they will be dressed up as Orcs, something to do with a promised game of theirs called Night Orc which has been in the offing for over a year now). Electronics Arts will launch officially; US Gold will of course be there in all their glory (rumour also has it that they will again have the biggest stand in all the world) Infogrames, Magnetic Scrolls, Infocom (courtesy of Activision) the list goes on and on. CCI will also be there situated in the Commodore Village, and I will be on hand on the Friday and Saturday to hold an adventure help service or just to meet you all and talk adventures. If you have a problem or just want to catch up with all the latest info, come along to the stand and have a chat with me, I will look forward to it.

Some interesting letters this month, none more so than from a reader in Norway who is trying to play Dracula. I found it hard and I can read English easily; it must be incredibly difficult for you people overseas unless they do a Norwegian version, but I doubt it! To help you in your plight, I have decided to print the whole solution for you so you can look at it when necessary. Thanks by the way to P.R. Lamonby for his own adventure that he sent me, which was written using Incentives GAC. I've given it a work out and put my comments down in the review section. Any more in the offing from anybody?

ADVENTURE NEWS

Three More Infocom Titles Coming

Yes, folks the boys at Infocom are hard at it producing new adventures like they are going out of fashion. I hear news of Three more titles, NORD 'n BERT COULDN'T MAKE HEAD OR TAIL OF IT. No, you haven't read it wrong that really is the title, and it's a very witty game of 8 short stories set around the village of Punster (is that a Pun?) where you have to decipher messages and mind your P's and Q's as nothing is what it seems to be. PLUNDERED HEARTS promises to be a tale of romance, the first in Infocoms new Romantic series, and finally they have gone back to the big one, the one that started them on the road to fortune, with the release of BEYOND ZORK. As soon as copies are available you shall be told all.

Adve

MAILBAG

Dear Andy,
I have some problems with two adventures. In Dracula Part 2, I'm sitting in the coach. How do I stop it. In Part 3, I have taken the train to Stratford, but who am I gonna visit there?

In Hitchhikers Guide to the Galaxy, how do I get the Babel fish?
Svein Gunnarson, Norway

Well Svein, the Dracula answers are a bit further on in the column, it's the whole solution, but as to the famous Babel fish puzzle, it goes like this: First get the junk mail from the front door, then in the Vogon hold, put the towel over the grate in the floor and the dressing gown on the hook. Get Ford's satchel and put it in front of the panel and put the mail on top of it. Press the button and that's it.

On the subject of Twin Kingdom Valley, a couple of people are stuck.

Dear Andy,
Please can you help me. On Twin Kingdom Valley, how do you get the staff of gold off the witch and what's the wand and the crystal ball for?
Stuart Hector, N. Devon

Dear Andy,
I am writing in the hope that you can prevent my wife from divorcing me by dropping a few clues about Twin Kingdom Valley and Sorceror of Claymorgue Castle.
In Twin, how do you get the

silver key from the witch, and the master key from the dragon, and in Sorceror, are there any rooms off the Ballroom or Kitchen and where is the towel?
M. Powell, London SE9

You boys have go a problem haven't you? To be honest, it seems that in Twin Kingdom Valley, you have both gone a bit wrong, as the witch does not have the staff of Gold, or the silver key, the forest king's got that. To kill the dragon you need the wooden staff which is behind the silver door in the desert kings castle. Give the diamond to the forest king and he will give you the silver key. Take the crystal ball to the witch and she will give you a bronze key. This will release the Princess. In Sorceror, look in the kitchen and you will find something in the cupboard and in the ballroom there is something interesting in the chandelier.

Dear Andy,
In August's column, you printed a letter from Carla Perkins about Mystery of Munroe Manor, and that she could not contact them. My solution was sent to me from Severn Software about two years ago, so they may not still be there. My version has graphics and sound incidentally unlike Carla's which seems to be text only. PS, some months ago you reviewed Europe Ablaze by SSG, any chance of reviewing some of their others as they are now down to £14.95.
Yours Geoff Shaw, Wigan

Thanks a lot Geoff for the Munroe Manor clues, I shall send them straight off to Carla in the hope that she hasn't destroyed the tape in frustration! On the SSG front, I have got those other games, and will run a special on them in the near future, ok?

For those of you who are Plus 4 owners here are a couple of fellow users with problems.

Deary Andy,
Since Christmas I have become the owner of a Plus 4 for business as I am a Landlady in a Public House. But as I have not had time to learn programming, I use it just for playing adventures. I am stuck on Savage Island, how on earth do you get past the bear. Incidentally, why is there such a shortage of Adventure games for my machine?
Pat Ellaway (Mrs)
The Cavalier, Cardiff

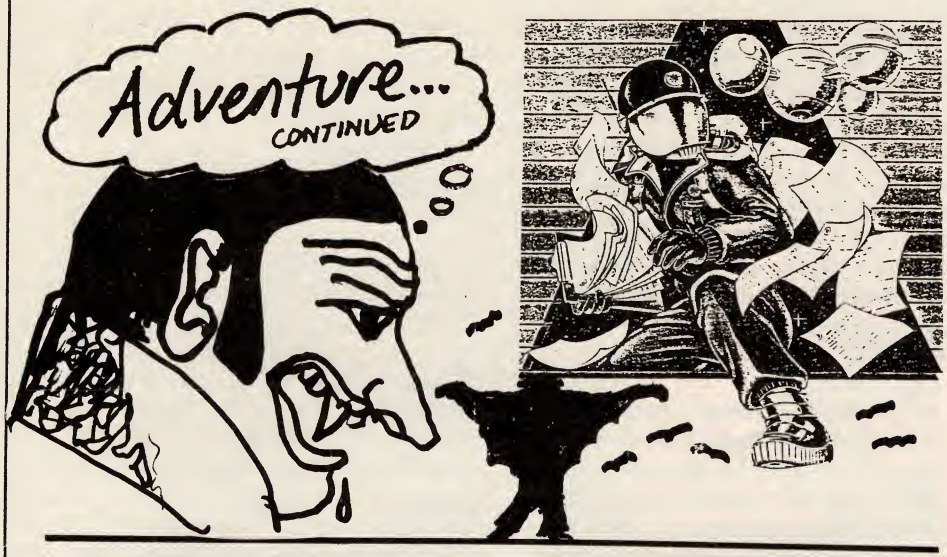
I can see it now down at the Cavalier, no one gets any drinks because you are too busy strugging with Savage Island? An old problem this, fill the bottle with salt water and pour it on to the rock near the bear. He will lick at it, and you can sneak past. As to why such a shortage of games, it is all down to Marketing. All software houses like to sell games, but they need to sell a lot to make money, and obviously feel the Plus 4 market is too small. Write to them and complain. If enough of you do it, they will change their minds. So how about it US Gold et al? Plus 4 games please.

Issue!

Dear Andy,
I now own an Amiga and decided to buy my first adventure game (which is unthinkable as I have had a 64 for years). I bought The Pawn, because of the good reviews, and since then have been stuck. Where is the key to the wooden door in the ice tower, also what next. Knight Orc or Guild or what?
John Hall, Epsom
Hi John, welcome to the club! The key you need is the Blue key which opens either the ice tower door or the safe, and it is located under the pedestal by the lava river. You can only use it for one door though, and I

Dear Andy,
In July column Thomas Reid asked if there are any more Plus 4 adventures, well I have Spiderman, Pirate Adventure and Red Alert so if he wants to swap for a while he is more than welcome. Also how do I get from the Island to Treasure Island in Pirate Adventure.
Damien Jones, 76 Caetyddyn Llanrwst, Gwynedd

There you go Thomas, a chance to swap some more adventures for your Plus 4. Send them to Damien at the above address. On Pirate Adventure, you need to revive the old Captain in order to let him sail you to Treasure Island. Go back to the flat and you'll find him sleeping (if you gave him the rum to start with).



SOLUTION OF THE MONTH DRACULA

Part 1

To get past the coachman, give money. Go to reception. Look desk, ring bell, sign register. Landlord will give you a key. Dining Room, read menu, choose combination of food and optional wine, water or nothing. You cannot eat until you have signed in and got your key. Your choice will affect events after the dream sequence. Close window in room if attacked by birds, if you jump from the window, eat a different meal. Choking? sleep sooner, if you light lamp before leaving the room you will not get staked by the landlord. To get coach to castle inthe morning go west and set for 4 moves. The coach will arrive, then give name which is in the register, and board coach.

Part 2

In coach look around to find woman, look face, look eyes, this takes you into trance sequence. Break trance by closing eyes shake head etc. If you are carrying the crucifix the coachman will not let you board the second coach. Wear it first. In coach, look aroun, examine door, remove cross, insert cross, turn cross, open door look, get blankets. To get into castle, find staircase, go to top. Look door frame, examine bat, examine mouth, put finger. Polish tray to use as mirror for shaving, wave cross if attacked by vampire. Smash bottle, get shard, look curtain, cut cord (with shard), get lamp from labyrinth.

Part 3

Get money from drawing room, by looking chair, get coat, wear coat, search pockets. Buy newspaper, read paper, go to post office, get letter, go to station and be told to come back tomorrow. Don't sit on seat otherwise you will fall asleep, go to study, look desk, get notes, look desk and key will be under notes. Upstairs, unlock east door, look around, get net. Capture Renfield by entering forest with net and Van Helsing. Climb tree and drop net. Get axe from hut, using the stone from the glade to smash the window, enter mansion by felling tree then climb, fill sack with hay from stable, make stake from broken handle in yard, enter mansion go to kitchen, remove drawer, look, get knife, sharpen stake. Enter crypt by emptying hay outside, and waiting for sun to light it and burn door. The tomb passage leads to Dracula's mausoleum. Go there with knife and stake and enter the butchery business!

ADVENTURE REVIEWS

Stationfall

Infocom — £19.99

Planetfall was one of my all time favourite Infocom releases, not only was it very tough, but I fell in love with that old rascal robot Floyd. Somehow right in the midst of a tough problem he would come out with a great one liner and break me up. I missed Floyd. Happily he is amongst us once again as Steve Meretzky has conjured up another masterpiece in Stationfall, a worthy successor. This time around, you find yourself (since your promotion to Lieutenant after saving the planet Resida) on the paperwork desk as numero uno form collector. The real fun starts when you are ordered to go to a nearby space station to collect yet more forms in the company of a robot from the pool who turns out to be ol' Floyd. You arrive there and no one is around . . . why?

Getting to the station is not difficult, as long as you remember that forms fit what slots for access to the space ship to get you there.

Getting off the ship at the right station proved a very taxing situation even for me. But old Floyd still coming out with those great little lines stops you from getting too frustrated. A nice quote comes as you sit at the controls of your ship and Floyd says "Oh boy, can I drive please, I haven't crashed a ship in year!" Great stuff!

Personal Rating 10

Witch Hunt

Classic Quests — £12.95

You are Filbur Apse, a very obnoxious person, and you take great delight in upsetting and annoying everyone you meet. Unfortunately for you, you annoy an old man one day who just happens to be a passing wizard, and as punishment he casts a spell that makes you into a really nice person. One person

Adventure!

Adventure... CONTINUED

can remove this curse, an old witch who lives deep in the forest, but she will not help without you performing a task. Quite simple really, all you have to do is to discover what ingredients are needed for the spell and then find them, whilst getting some dried lichen for the old crone at the same time.

That is the tale of Witch Hunt, one in a series of five from Classic Quests, a London based software house. The adventures range from an easy beginners tale, Goblin Towers, to a real toughie, Cornucopia. Witch Hunt is a middle range release which is labelled as "difficult" and from what I have seen of it seems to be more "tricky" than difficult. The game is text only with instant response times and a very generous amount of descriptive narrative. Where Witch Hunt wins my vote is in the wide choice of options available to you. For instance most of the usual commands are supported like quit, inventory, examine etc, but there are some very neat extra ones like Brief, Superbrief, verbose (a la Infocom) MACROS, which is up to four lines of instructions that can be saved and recalled for later use. This is useful when a set of commands is repeated several times, ASSUMED VERBS is where the Parser will assume the verb when you only enter the name of the object ie Lamp will be interpreted as Take Lamp is the previous command was Take something else. CURSOR DOWN key copies the previous line onto the current line, useful if you have made a typing error.

All these options make for a very user friendly system that is a joy to use.

Even the character set has been changed to a very soft italic. The actual puzzles are all very logical but require some deep thought at times. If the rest of the Classic Quests are up to this standard then I strongly recommend you get the whole series.

Personal Rating 9

Guild Of Thieves

Magnetic Scrolls/Rainbird — £14.99

If you read my special on Guild Of Thieves in June's CCI you'll know that I was madly excited about it when I went down to Magnetic Scrolls' offices and played the unfinished version. Now it has arrived complete and with all the packaging that goes with it I can report that I am just as enthusiastic about it. The graphics are PAWN standard — in other words classic, and the gameplay is the same high standard that I saw at the Scroll HQ. A lot of loving care and God knows how many hours are wrapped up in this work so buy it as soon as you can and enjoy every moment.

Personal Rating ..... 10/10!

The Three Musketeers

Infogramme — £12.95

This adventure really had me glued to my monitor for hours. It is so simple to play, yet really addictive and I found myself coming back to it again and again. It is a game of over 80 beautifully digitised graphical locations that slot neatly with scripted text and chronicle the story of you (as D'artagnan) and your three musketeer friends chasing the mystery of the Queen's jewels. You get presented with a few simple choices of action which either bring about a premature end to your quest or let you continue on. The whole game is set out in this way which makes for very rapid game play indeed. The one drawback to the whole thing is that it is possible to finish it in one sitting if you persevere but in the mean time you've had a feast of entertainment.

Personal Rating 8

The Body

Paul Lamonby

This adventure was sent in by Paul who is a regular reader of the column. He wrote it using Incentives' GAC utility. The scenario is that you have to find a few parts to a body i.e. ear, eye, arm etc, which cobbled together will give you some letters. These letters form a word which you have to find in order to finish the game. He has also included location graphics in the game, which considering the memory limitations are really up to a very high standard. The world you are exploring is desert, caves, rivers and plains and some of his puzzles are pretty mean. I must confess to ringing him up once for a hint at one stage, which caused me no end of embarrassment I can tell you! Paul is happy to send out copies of the adventure to anyone who would like a crack for £2. Write to him at Swinton House, 64 Stanley Road, Halifax, Yorkshire HX1 3QU.

Adventure!

That's all for this month, don't forget to come and see us at the PCW show and talk adventure, and keep sending those letters. Next month I've got Bards Tale II, Alternative Reality — The Dungeon, Legacy of the Ancients and Lurking Horror to look at, see you then.

A.M.

Scrolling (Later) On

Peter Gerrard must think that somebody up there doesn't like him. For the second time one of his interesting series of hints and tips has been hit by the missing routine syndrome! On page 99 of CCI July it mentioned programs to go with Peter Gerrard's article 'Scrolling Along'. If you looked hard enough — and a number of quite reasonably aggrieved readers told us they did — you would have seen that the programs were more noticeable by their absence than by their presence! Our humble apologies to both the readers and to Peter ('This is too big an interruption') Gerrard. Here they are:

```
DRAWING PROGRAM

10 PRINT"□";:
20 STOP
30 FORJ=0TO14:FORI=0TO39
40 POKE 24576+I+J*240+K*40,PEEK(1024+I+J*40):NEXTI,J
45 K=K+1:GOTO10

READY.


DRIVER PROGRAM

3 POKE 55,0:POKE 56,96:POKE 50255,0
4 PRINTCHR$(142)
5 POKE 50432,0:POKE 50433,1:POKE 50434,0:POKE 50435,10:POKE49707,10:POKE49771,10
6 PRINT"[CLR,WHT]";:POKE53265,36
7 POKE 49703,40:POKE49767,40:X=40:Z=10
10 FORI=1TO5:PRINT"[RVS,GRN,40SPC]";:NEXT
12 FORI=1TO15:PRINT"[RVS,WHT,40SPC]";:NEXT:PRINT"[GRN]";
13 POKE 53281,0:SYS49952:POKE50432,PEEK(50432)-1:POKE 53281,0:POKE53280,0
14 FORI=0TO199:POKE1824+I,160:POKE56096+I,5:NEXT
15 PRINT"[HME]";:FORI=1TO5:PRINT"[RVS,GRN,40SPC]";:NEXT
16 POKE 53265,27
17 PRINT"[HME,2CD]'A' TO MOVE LEFT - 'D' TO MOVE RIGHT"
18 PRINT"[HME,RVS,GRN,22CD]";
19 PRINT"(C) 1987 DIMLI GLOING AND STROMBRIGNER  THE DYSLEXIC WIZARD."
20 B=PEEK(197)
21 IFB=10THEN100
22 IFB=18THEN200
30 GOTO20
99 END
100 SYS49408:GOTO20
200 SYS49440:GOTO20

READY.
```

Program

DATA PROGRAM

```
100 FORI=1TO7:READS(I),E(I):NEXT
110 FORJ=1TO7
112 FORI=S(J)TOE(J)
114 READA:POKEI,A:NEXTI,J
116 END
190 DATA49408,49471,49664,49787,49952,50158,52048,52073
192 DATA52080,52105,51968,52018,52224,52274
200 DATA174,018,208,224,000,240,007,224,031,016
210 DATA003,076,000,193,032,000,194,174,079,196
220 DATA232,142,079,196,224,239,240,003,076,000
230 DATA193,096,174,018,208,224,000,240,007,224
240 DATA031,016,003,076,032,193,032,064,194,174
250 DATA079,196,202,142,079,196,224,000,240,003
260 DATA076,032,193,096
300 DATA076,053,194,185,000,203,141,102,195,141
310 DATA106,195,141,120,195,185,001,203,141,103
320 DATA195,141,107,195,141,121,195,076,091,195
330 DATA172,003,197,200,200,140,003,197,192,040
340 DATA208,014,160,010,140,003,197,142,000,197
350 DATA076,213,195,172,003,197,032,080,203,076
360 DATA003,194,255,000,076,114,194,185,000,203
370 DATA141,138,195,141,142,195,141,156,195,185
380 DATA001,203,141,139,195,141,143,195,141,157
390 DATA195,076,128,195,172,003,197,200,200,140
400 DATA003,197,192,040,208,011,160,010,140,003
410 DATA197,076,192,195,172,003,197,032,080,203
420 DATA076,067,194,000
500 DATA160,010,185,000,203,141,065,195,185,001
510 DATA203,141,066,195,185,000,204,141,062,195
520 DATA185,001,204,141,063,195,174,000,197,189
530 DATA032,109,157,000,096,169,001,157,000,216
540 DATA232,224,040,208,240,200,200,192,040,208
550 DATA207,142,000,197,096,234,234,234,234,174
560 DATA000,197,224,239,240,064,160,001,234,185
570 DATA200,004,136,153,200,004,200,200,192,040
580 DATA208,243,136,232,189,000,096,153,200,004
590 DATA076,030,194,076,213,195,174,002,197,224
600 DATA000,240,027,160,038,185,200,004,200,153
610 DATA200,004,136,136,192,000,016,243,202,234
620 DATA189,000,096,141,200,004,076,094,194,004
630 DATA096,096,000,255,000,255,000,255,000,255
640 DATA000,255,000,255,174,000,197,224,239,240
650 DATA025,174,002,197,200,142,002,197,096,044
660 DATA174,000,197,202,142,000,197,174,002,197
670 DATA202,142,002,197,096,064,194,076,128,196
680 DATA076,174,000,197,224,239,240,010,174,002
690 DATA197,232,142,002,197,096,000,194,162,200
700 DATA142,002,197,076,000,194,000
800 DATA185,000,204,141,065,195,141,117,195,141
810 DATA153,195,185,001,204,141,066,195,141,118
820 DATA195,141,154,195,096,000
850 DATA172,003,197,032,080,203,076,003,194,076
860 DATA003,194,255,000,255,000,172,003,197,032
870 DATA080,203,076,067,194,255
900 DATA000,004,040,004,080,004,120,004,160,004
910 DATA200,004,240,004,024,005,064,005,104,005
920 DATA144,005,184,005,224,005,008,006,048,006
930 DATA088,006,128,006,168,006,208,006,248,006
940 DATA032,007,072,007,112,007,152,007,192,007,000
950 DATA000,000,000,000,000,000,000,000,000,000,000
960 DATA000,096,240,096,224,097,208,098,192,099
970 DATA176,100,160,101,144,102,128,103,112,104
980 DATA096,105,080,106,064,107,048,108,032,109
990 DATA000,000,000,000,000,000,000,000,000,000,000
```

READY.

THE BRITISH MUSIC FAIR

Ian Waugh plays a visit to the UK's most important electronic instrument show of the year.

Now in its third year, the British Music Fair has rapidly established itself as one of the premier exhibitions of musical instruments in the world. It was held from the 28th July to the 2nd August at Olympia in London and attracted over 30,000 visitors.

Over 110 exhibitors displayed their wares — everything from keyboards to computers, from guitars to glockenspiels.

The Commodore 64 was conspicuous by its near-absence, most of the pro and semi-pro software producers concentrating on the Atari ST. Nay, not even one Amiga in sight.

Music Sales, however, were flying the flag for the 64 and were showing off their excellent range of SFX software including the Sound Expander, Sound Sampler, their clip-on keyboard, Music Maker II and the expanded version for the 128. More details on 0284 702600.

New from Music Sales was their Gling machine (yes, that is not a misprint). It was developed for Philips who wish to support their MSX computers and unfortunately is not available for any other computer. It produces an auto accompaniment in a variety of styles — classical, disco, country, march, funk, eurodisco, etc. — and you play a tune on a single row of keys on the computer.

The nice thing is — you don't have to be a musician to play it as each key you press produces a note which automatically fits with what the backing is playing at the time. You just decide if the next note should be higher or lower than the last one and how long it should last. It's really fun.

EMR were demonstrating their range of MIDI software (see review in our May issue) and attracting a great deal of attention from all who passed their stand.

MIDI software for the Commodore 64 was being shown for the first time in this country by the American company Sonus who have just opened an office in the UK. Being American and not having their UK office established in time to qualify for a stand at the BMF (shame!), they took a suite at a local hotel.

Sonus have developed over a dozen MIDI items for the Commodore 64 and are one of the few companies to take advantage of the extra memory in the 128. If you're thinking MIDI, get more details from them on 0734 792699.

Cheetah Marketing, famous for (very) budget-priced computer add-ons, were showing off their latest range of budget-priced keyboards. From the MK5 MIDI Master Keyboard (around £200) to the MK7VA (under £400) with a full 7 octaves of weighted keys, after-touch, 3 split points, a patch change keypad and loads more features, Cheetah look set to turn the keyboard market on its head.

Cheetah are also marketing the MS6 MIDI Synthesiser Module: 6-note polyphonic, multi-timbral, with 64 programmable patches and an arpeggiator. All this and more for around £250.

We can't leave the Fair without mentioning Roland's D-50 synth. Yes, it costs £1445 but everyone who's seen it seems to want one — and that includes me.

Must also mention Yamaha's SHS-10, a shoulder-mounted guitar-shaped keyboard for would-be posers. It has FM sounds and some rather good built-in accompaniment patterns. A nice £149.99's worth which will surely find its way into many a stocking this Christmas.

Can't forget Yamaha's WX-7 wind controller either. Never before seen in this country, it opens up the world of MIDI to wind players. Very impressive.

Apart fro the music demos there were also lots of special exhibits such as the world's largest drum at 12ft 9in in diameter. It produced a noise like thunder and there was even talk of sampling it and putting it in a keyboard.

As well as the risk of being deafened — and not only by the drum — you were also likely to be pounced on by a gorilla and plastered with stickers advertising amplifiers. There were also lots of rather attractive young ladies intent on filling your Roland carrier bag with product information (what we roving reporters go through!). Not one of them slipped me their phone number, though.

I may be taking ear plugs and a couple of pacifying bananas next year — but I'll certainly be back!

SPECIAL OFFERS! ONLY TO CCI READERS

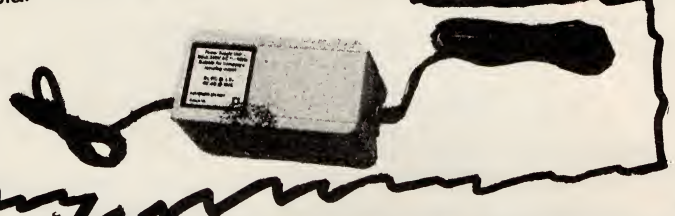
only £34.95

Turbo-GEOS Mouse C64

Superb quality two-button mouse — compatible with GEOS. (Graphic Environment Operating System program with icons and windows). Will also run with most joystick operated programs. **Mouse only £34.95**

Power Supply

If your power pack for your 64 has blown up, or is overheating this will take its place to give you trouble free use. Vital for the perfect running of your 64, this Power Supply is highly recommended. Made by a leading manufacturer, we are offering it at a special CCI price of **£24.95**



Turbo GEOS Mouse with OCP ART STUDIO

at £47.95 tape version (64/128)
& £50.95 disk version (64/128)

Features of ART STUDIO

- ★ operates in high resolution mode
- ★ icon driven
- ★ pull down menu
- ★ creates an image — shrinks, expands and rotates
- ★ 32 textures
- ★ 3 magnification options
- ★ 16 brushes
- ★ 16 pens
- ★ 8 sprays
- ★ zoom
- ★ cuts and pastes
- ★ printer dump
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6502 ASSEMBLY LANGUAGE TRICKS AND TIPS

Part 2

In the first part of this series we looked at some of the peculiarities of the 6502 processors. This part is concerned with optimising or *massaging* your code for increased execution speed and efficiency. The obvious way to do this is to shorten the number of instructions in a given routine. However, there is another way — the harder way of course, and that is to carefully examine the reasoning behind selecting a particular instruction sequence or algorithm. Question yourself as to why you are doing it this way. Is it because you have always done it a certain way or because of memory restrictions? Look at the number of clock cycles your routine is taking — can this be reduced by employing alternative instructions Never underestimate the importance of clock cycles, they can make the difference between a program *bumping* along and one which simply *glides* along. In the science of statistics there is a well known phenomena named *PARETO's Law*. Translated into assembly language terms this states that 80% of the work of your application is done by only 20% of the total coding. Try to identify this 20% and work on optimising this section of your code.

OK, that is enough of the theorising, it's now time to move on to some examples. Virtually all applications need a section of code to initialise various parts of the machine memory map. This could be setting up registers in an input/output device, display resolution configuration or merely placing certain numeric values in memory to form a data table for reference by the main program. For example, suppose we had to setup a table for *true* and *false* variables — that is setting and clearing bits with the values $FF and $00. We might also want to continue the data table to have an increasing order of numeric values. A poor piece of code could look like this:—

```
LDA #$FF    ; load a true setting
STA Var1    ; store as the 1st variable at location Var1
STA Var2    ; store the 1st variable at location Var2
LDA #$00    ; load a false value setting
STA Var3    ; and store this at location Var3
STA Var4    ; and so on.
LDA #01     ; start our increasing numeric order table
STA Var5    ; and store this
LDA #02     ; repeating this process
STA Var6    ; until the job is complete
```

Tell the truth, how many of you have written code just like this? Don't worry too much, almost without exception every assembly language programmer starts out in this fashion. The above code fragment totally ignores the X- and Y-registers and yet we can considerably reduce the number of instructions used by bringing these two registers into the picture. Consider the following:—

```
LDX #$FF
STX Var1
STX Var2
LDX #$00
STX Var3
STX Var4
INX
STX Var5
INX
STX Var6
```

There still 10 lines of code, but look at the reduction in the number of clock cycles. The first code fragment requires 20 clock cycles, assuming that we operating in *page zero*, while the second code fragment only requires 18 clock cycles. This may not sound very much of an improvement and yet it amounts to a 10% saving — surely this is something worth having, particularly where memory is tight. Notice how I have used the index register increment instruction *INX* to achieve the saving. Seasoned 6502 assembly language programmers will know that an increment of the accumulator register is not available and the normal reaction of a beginner is to forget about using the index registers. To these programmers I would repeat the maxim to deploy ALL the resources available to you.

Most application code will contain a very large number of jumps to different memory locations as the flow of program control is passed to separate routines. The method of operation of the 6502 after receiving a *JSR* instruction is to push the current contents of the program counter register on to the stack. After receipt of an *RTS* instruction the address is recovered from the stack (assuming that the stack has not been used in the meantime) and placed in the program counter register before finally being incremented by the value of $01. The reason for this last action is simply to avoid an infinite loop being set up.

Suppose we wanted to branch to several alternative routines depending upon an index value. This could be in response to an input/output action such as the press of a joystick button or an end-of-file signal from a storage device. Consider the following code fragment:—

```
LDA #HIADDR   ; the high byte of the routine's location
PHA           ; push this on to the stack
LDA FUNTBL,X  ; index register contains the function number
PHA           ; pretend return address
RTS           ; go to the routine
```

The function table *FUNTBL* contains the low byte of each routine **minus one** because of the program counter increment. Hence this section of the code must have the function number in the X-register. The method of operation is for the high byte of the address belonging to our routine to be pushed on to the stack *(HIADDR)* followed by the low byte obtained from the table designated *FUNTBL*. The stack will now be showing an address of a routine to execute as though an instruction just before the routine had been a *JSR*. If this sounds just a little too complicated then follow the code fragment through again and visualise the register contents. All we are really talking about here is a form of *indirect jumping* where we are cheating the program counter register.

I'll continue with the theme of addressing modes and move on to indexed addressing. The major benefit that the 6502 offers over the Z80 are the number and flexibility of its addressing modes. Indeed, this is carried over into the 16-bit world where the 6502's natural successor, the 68000 makes great use of addressing modes to extend the overall functionality of the processor. However, given the large number of addressing modes there are situations where the assembly language programmer runs into problems. For example consider the position where a *non*-indexed indirect addressing mode is required. Usually it is the Y-register which is used as in:—

```
LDY #00       ; the index of 0
LDA (PTR),Y   ; non-indexed where PTR is the pointer
```

However, what happens when the Y-register is in use? The answer is to employ the X-register with the obscure *pre-indexed* indirect addressing mode — if the X-register is in use also then you will have to work around this at some cost to the execution speed of the routine. Readers who wish to familiarise themselves with microprocessor addressing modes in general should refer to Chapter 6 of "*An Introduction to Microcomputers. Volume 1 — Basic Concepts*" published by Osborne/McGraw-Hill. The *pre-indexed* indirect mode looks like this:—

```
LDX #00
LDA (PTR,X)
```

Naturally I will assume that our astute programmer is watching carefully for an index register that already contains a zero value that they can utilise *before* they embark upon the delights ofpre-indexed indirect addressing!

In the next part of this series I will be looking at the problems of relocatable code, branching and arithmetic operations. Finally, after publication of the first part of this series a number of readers contacted me about which assembly package I would recommend. The one which I use and receives my vote is the *Multi-Assembler* from JCL Software Ltd. This has the distinct advantage of covering all of the Commodore home computer range within one package and unlike the *MIKRO* assembler is more sensibly priced.

B.D.

★ Programme Submission Procedure ★

DO NOT submit any programme or routine that you do not either own or have proper authority to do so.

ALWAYS include your name, address and the date on all material and any enclosures.
Do not forget to to make it clear exactly which computer/s your programme or article is applicable to.

Include ROM or DOS versions wherever they are pertinent.

Number all pages.

If you have to submit work which is hand-written then you must make sure it is printed clearly.

Never use staples. Use paperclips if necessary.
If you are saving your programme to tape then save it AT LEAST twice on each side.
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Remember to label all tapes and disks with your name and the title of the programme. Label tape or disk with your name and the name or title of the programme.

Always ensure that disks are well packaged. They should ideally be sent in a commercial disk mailer or at least packed between two pieces of hardboard or rigid plastic.

Please allow at least 8 weeks for acknowledgement as all programmes have to be thoroughly tested and made into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your programme to be returned.

★ Programming tips ★
If you can, use CHR$(x) type commands instead of those hard to read graphic symbols.
If necessary renumber your programme on completion as many readers use auto number utilities to ease typing in.

Try to keep instructions within the programme itself as a sensible level. You can expand on them within the accompanying text if necessary.

TEST your programmes before submitting them or even better get a friend to test them for you.

If a programme contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your programme contains any more than five lines of data. There is a suitable routine at the end of this article.

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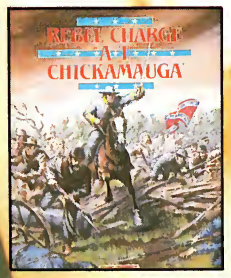

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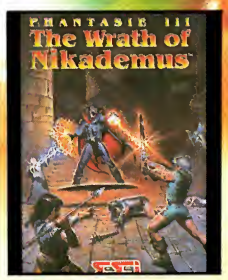

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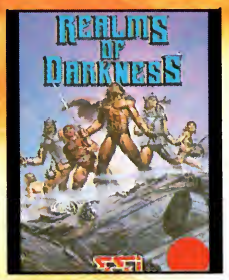

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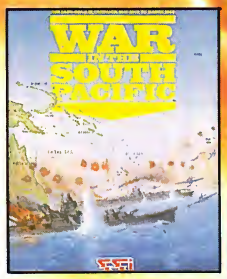

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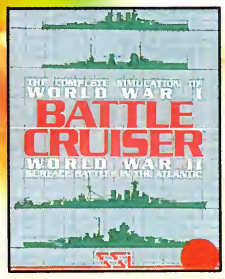

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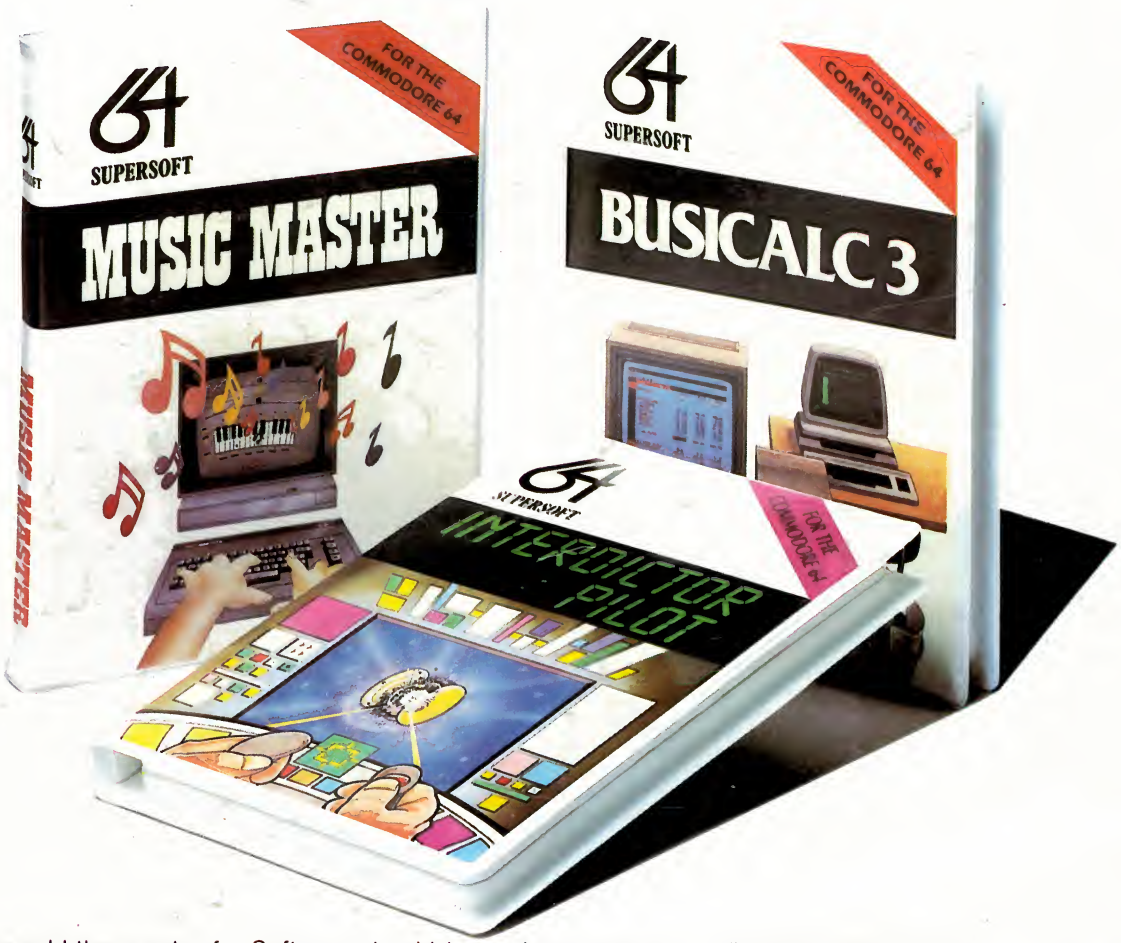

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